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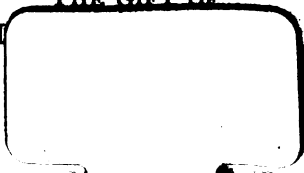
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# A WORK-BOOK IN ARITHMETIC

· GRADE FOUR

PREPARED BY  
LINCOLN OWEN

Master of the Rice School  
Boston, Mass.

PUBLISHED BY  
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## PREFACE AND SUGGESTIONS

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The title, "A Work-Book in Arithmetic," has been adopted to indicate the general purpose of this book, which is designed for use in Grade IV as a basal textbook.

The book is divided into three parts:

Part I includes an abundance of simple abstract work appropriate to the grade.

Part II includes concrete problems, illustrative solutions, reading exercises, and the tables of denominate numbers.

Part III includes exercises that are suitable for monthly tests.

This plan of arrangement makes the individual teacher, who knows the attainments and deficiencies of her class, the judge as to the amount and type of abstract work that shall be taken at any particular time.

In the opinion of the author, six pages of this concrete work can be mastered per month together with the assigned monthly tests and leave an abundance of time for abstract work.

The tables of addition, subtraction, multiplication, and division are not printed in the book, but it is expected that they will be revived, re-taught, if necessary, and used.

The tables of denominate numbers are printed with abbreviations only, as this is the form in which these terms appear in problems. In all modern arithmetics it is the custom not to pluralize abbreviations in the printed forms.

The illustrations are printed for use and not simply to decorate the page.

Exercises have not been labeled as sight, or mental, or written, or oral, because most sight exercises should be worked as follows:

1. Orally, where the pupils read the questions and answer them under the guidance of their teacher. All errors are immediately corrected by the class and the teacher working together.

2. As a written exercise, in which each pupil reads his own questions and records the answers on a slip

3. As a written exercise, in which the teacher reads selected questions and, at a given signal, the pupils record their answers.

All descriptive portions of the book should be read and the meaning brought out by questions.

During the first part of the year all problems should be read and interpreted before they are assigned to the class for solution.

It will be found that many exercises which are too difficult for class assignment can be used very successfully as cooperative exercises. Some of those exercises are so labeled in the text.

In teaching a difficult process a cooperative plan of work is very serviceable. The following are the common types of cooperative work :

1. The teacher works at the board, while the pupils watch the work, answer questions, and contribute suggestions.

2. The teacher works at the board, while the pupils answer questions and work at their desks.

3. Some pupil works at the board, while the pupils work at their desks.

4. The pupils all work at their desks as the teacher dictates, or makes suggestions, or asks questions.

In explaining problems, pupils of this grade should, in the main, be allowed to use their own forms of expression. Any form of expression which shows that a pupil understands a problem should be accepted. The two simple types of analysis that are presented in the book should be used as forms of explanation.

The work in common fractions and in decimals should be largely oral and concrete, and much of it should be done cooperatively with the fraction board or at the blackboard.

In this grade it is desirable to **provide as much concrete work as possible** and to encourage out of school activities from which pupils acquire experiences that are essential to the understanding of arithmetical problems. As simple suggestions the following **may** be named :

1. Playing store in school and at home.
2. Playing dominoes at home.
3. Counting objects up to fifty; such as sets of books, blocks of paper, sheets of paper in a block, packages of cards, etc.
4. Recognizing by touch the pound, the ounce, and more or less.
5. Recognizing the second, by the rate of giving answers; the quarter of a minute, by holding the breath.
6. Estimating distances and quantities; verifying the estimates.

#### SUGGESTIONS UPON THE DRILL WORK OF PART ONE

Well selected exercises that are fitted for individual assignment as well as for class use enable the pupils to acquire a reasonable degree of proficiency in abstract work in the shortest possible time and thus leave an adequate amount of time for concrete work and teaching exercises.

In grade four, not more than two fifths of the time allowed for arithmetic should be given to abstract work.

Any pupil of grade four who is up to grade should get at least four out of every five of these examples correct at the first trial.

By midyear these examples, except in long division, should be worked, on the average, as fast as two per minute.

The pupils should frequently work under a time limit with a comparison of answers at the end of four

or five minutes. By beginning at different points a single form will furnish drill material for several days.

Such a form as No. 12 should be used repeatedly in the early part of the year as the means of finding the causes of failure and as a type of "practice on single figures" that is far more serviceable than a recitation of tables.

The following are some of the ways of using cards No. 12 and No. 42.

1. Have several pupils give five answers each.
2. Go around the class, each pupil giving one answer.
3. Time several pupils for fifteen seconds each. Aim to secure even speaking at the rate of one answer per second.

Such forms as Nos. 4, 6, 9, 10, etc., that require pupils to transfer numbers and arrange them, furnish a most excellent training in carefulness.

The pupils should be trained to exchange papers and mark answers. When this is to be done, they should all work with pencils and all mark answers with pens or the reverse.

While marking answers, no discussion should be allowed and no explanations given. It is economical to have one pupil read as many answers as he can correctly, or at least read a considerable number before changing to another reader.

It is stimulating and encouraging for each pupil to keep a progressive record, with dates, of his own *attempts* and *rights* in all timed exercises.

Do not leave any form permanently till three fourths of the class are up to the standard.

In order to secure accuracy and speed in computation some method of revealing to pupils their own successes and failures is an essential part of a good system. An answer book in the hands of the teacher is indispensable and it should be in constant use, but the pupils should be so trained that they will expect to get correct answers in first-draft work and will have a high degree of confidence in the correctness of their own computations.

Every pupil who fails to reach the standard of his grade should be required to work and *prove* two or three examples, as an extra, soon after a timed exercise.

To prove an example in addition, add downward.

To prove an example in subtraction, multiplication, or division, either go over the work again, or re-work the example in full on *fresh paper*, or use the customary forms of proof.

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I hereby express my great appreciation of the helpful assistance given to me in the preparation of this little book by the fourth grade pupils of the Rice School and their teachers, Miss Emma A. Brust, Miss Mary A. C. Doyle and Miss Alice M. May.

LINCOLN OWEN.

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**A WORK-BOOK IN ARITHMETIC**  
**PART ONE**



# Rice Drill Card in Arithmetic

## Two-Figure Addition No. 1

Note:- Place a slip of paper under the examples, add without copying, and write the answers on the slip.

(1) 52	(2) 47	(3) 84	(4) 69	(5) 96	(6) 75	(7) 86	(8) 43	(9) 68	(10) 36
34	35	37	54	48	69	51	79	96	95
65	68	49	73	57	84	98	58	57	87
(11) 64	(12) 48	(13) 59	(14) 72	(15) 23	(16) 79	(17) 92	(18) 76	(19) 24	(20) 78
38	73	65	69	98	64	87	48	93	49
57	65	48	27	76	38	69	93	56	17
82	29	87	95	59	46	58	24	18	82
(21) 27	(22) 69	(23) 48	(24) 86	(25) 75	(26) 43	(27) 87	(28) 36	(29) 78	(30) 48
61	87	79	45	46	78	59	95	49	93
95	64	24	79	78	57	46	78	80	76
58	30	67	82	19	96	78	29	76	82
46	93	57	95	67	84	29	65	95	69

## Rice Drill Card in Arithmetic

## Plus Addition No. 2

Note:- Transfer each example to the work paper and number it plainly.  
Arrange and add:

- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. $72 + 46 + 84 + 39 + 15$  | 16. $45 + 87 + 59 + 68 + 93 + 79$ |
| 2. $38 + 27 + 91 + 86 + 47$  | 17. $86 + 95 + 73 + 19 + 34 + 68$ |
| 3. $46 + 75 + 38 + 95 + 73$  | 18. $75 + 83 + 69 + 48 + 92 + 57$ |
| 4. $87 + 69 + 54 + 42 + 79$  | 19. $29 + 74 + 56 + 84 + 67 + 89$ |
| 5. $29 + 76 + 85 + 37 + 42$  | 20. $64 + 87 + 26 + 91 + 78 + 56$ |
| 6. $56 + 89 + 73 + 19 + 58$  | 21. $58 + 49 + 63 + 37 + 85 + 72$ |
| 7. $68 + 27 + 49 + 76 + 97$  | 22. $92 + 87 + 43 + 65 + 97 + 38$ |
| 8. $93 + 58 + 83 + 28 + 74$  | 23. $84 + 59 + 67 + 28 + 94 + 43$ |
| 9. $45 + 77 + 98 + 37 + 56$  | 24. $69 + 82 + 57 + 96 + 49 + 24$ |
| 10. $73 + 81 + 68 + 96 + 49$ | 25. $48 + 79 + 93 + 17 + 81 + 47$ |
| 11. $36 + 97 + 85 + 69 + 54$ | 26. $59 + 98 + 45 + 87 + 64 + 75$ |
| 12. $57 + 75 + 64 + 37 + 89$ | 27. $83 + 78 + 59 + 27 + 96 + 48$ |
| 13. $82 + 64 + 43 + 74 + 53$ | 28. $96 + 57 + 29 + 42 + 74 + 97$ |
| 14. $69 + 86 + 57 + 97 + 47$ | 29. $39 + 85 + 43 + 68 + 24 + 76$ |
| 15. $94 + 38 + 43 + 59 + 65$ | 30. $74 + 98 + 69 + 57 + 36 + 87$ |

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# Rice Drill Card in Arithmetic

## Addition No. 3

Note:- Place a slip of paper under the examples, add without copying, and write the answers on the slip.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
729	682	796	497	578	256	497	958	593	769
248	579	478	865	629	748	952	379	829	692
467	867	596	379	867	693	379	856	576	876
905	735	839	986	594	975	698	932	795	459

(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
645	795	539	849	496	987	258	869	638	597
729	386	768	753	587	536	796	475	897	785
564	427	207	465	639	469	537	392	459	469
358	974	956	678	768	872	468	548	726	836

(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
796	573	879	279	876	726	693	764	579	968
457	908	548	586	358	350	879	293	682	784
284	694	607	493	642	967	417	678	706	270
695	869	251	568	409	518	704	956	951	695
879	758	986	745	897	679	586	385	297	789

## Rice Drill Card in Arithmetic

## Plus Addition No. 4

Note:- Transfer each example to the work paper and number it plainly.  
Arrange and add:

- |                                 |                                 |
|---------------------------------|---------------------------------|
| 1. 346 + 729 + 684 + 937 + 829  | 16. 297 + 538 + 792 + 638 + 729 |
| 2. 796 + 648 + 369 + 582 + 498  | 17. 981 + 706 + 827 + 495 + 385 |
| 3. 921 + 786 + 850 + 469 + 532  | 18. 468 + 257 + 506 + 918 + 736 |
| 4. 873 + 582 + 969 + 788 + 358  | 19. 521 + 729 + 687 + 295 + 869 |
| 5. 529 + 765 + 203 + 865 + 963  | 20. 862 + 357 + 682 + 325 + 948 |
| 6. 478 + 694 + 873 + 918 + 826  | 21. 934 + 781 + 292 + 164 + 876 |
| 7. 683 + 579 + 497 + 639 + 295  | 22. 279 + 864 + 573 + 968 + 485 |
| 8. 941 + 720 + 908 + 793 + 467  | 23. 496 + 729 + 895 + 796 + 329 |
| 9. 296 + 874 + 648 + 529 + 765  | 24. 837 + 573 + 689 + 468 + 937 |
| 10. 724 + 686 + 709 + 436 + 897 | 25. 695 + 846 + 724 + 954 + 398 |
| 11. 869 + 728 + 564 + 908 + 728 | 26. 572 + 698 + 516 + 725 + 869 |
| 12. 486 + 915 + 879 + 573 + 965 | 27. 867 + 489 + 769 + 296 + 975 |
| 13. 527 + 496 + 298 + 786 + 294 | 28. 957 + 863 + 479 + 506 + 729 |
| 14. 638 + 965 + 874 + 579 + 759 | 29. 486 + 794 + 596 + 868 + 936 |
| 15. 849 + 721 + 965 + 304 + 597 | 30. 839 + 472 + 657 + 807 + 364 |



# Rice Drill Card in Arithmetic

## Addition No. 5

Note:- Place a slip of paper under the examples, add without copying, and write the answers on the slip.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
764	543	492	863	79	564	159	278	796	897
48	8	69	29	563	209	8	96	45	8
165	97	573	172	8	86	27	7	127	169
9	206	8	19	724	738	646	49	9	47

(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
567	684	86	725	897	579	293	709	642	795
8	93	268	697	64	8	769	93	307	8
59	8	9	8	378	76	46	8	876	97
614	127	136	79	85	987	27	576	98	486

(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
879	597	468	697	796	396	965	796	489	679
46	49	96	9	58	409	87	35	708	840
7	286	307	26	7	78	49	8	98	88
438	8	746	348	161	57	798	967	9	375
75	675	47	85	48	796	67	59	84	96

# Rice Drill Card in Arithmetic

## Broken Column Addition No. 6

Note:- Transfer each example to the work paper and number it plainly.

Arrange and add:

1. 538; 27; 275; 8      7. 796; 509; 75; 465      13. 657; 589; 94; 8
2. 723; 9; 87; 205      8. 549; 7; 46; 269      14. 89; 486; 148; 9
3. 692; 79; 543; 17      9. 387; 98; 9; 497      15. 945; 689; 79; 80
4. 983; 48; 271; 94      10. 749; 87; 908; 82      16. 749; 46; 708; 95
5. 89; 794; 81; 675      11. 879; 98; 297; 48      17. 597; 168; 27; 8
6. 749; 48; 962; 586      12. 267; 863; 86; 964      18. 369; 38; 928; 79
19. 796 + 79 + 304 + 68 + 586      25. 574 + 198 + 57 + 607 + 875
20. 486 + 729 + 39 + 869 + 698      26. 924 + 79 + 368 + 687 + 578
21. 867 + 506 + 796 + 49 + 375      27. 672 + 879 + 49 + 324 + 916
22. 518 + 768 + 29 + 304 + 957      28. 786 + 93 + 746 + 8 + 798
23. 927 + 596 + 405 + 78 + 198      29. 468 + 392 + 74 + 963 + 276
24. 678 + 927 + 85 + 628 + 459      30. 289 + 469 + 967 + 846 + 789

# Rice Drill Card in Arithmetic

## Addition of U. S. Money No. 7

Note:- Place a slip of paper under the examples, add without copying, and write the answers on the slip.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
\$2.16	\$6.35	\$7.42	\$5.38	\$1.72	\$0.75	\$9.63	\$6.49	\$5.62
5.78	.97	4.26	.95	8.67	8.94	2.79	3.07	1.46
1.42	1.68	.49	7.64	.46	7.27	4.48	5.26	7.29
<hr/>								
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
\$5.79	\$1.72	\$7.48	\$3.27	\$6.38	\$2.79	\$3.27	\$6.36	\$2.94
4.92	.68	4.96	.39	2.24	7.63	9.68	.85	.27
8.75	7.96	5.75	5.06	.08	5.67	4.35	2.79	.69
3.26	2.47	2.94	2.71	3.75	.49	5.96	.45	3.84
<hr/>								

Arrange and add:

19. \$6.74; \$2.48; \$0.56; \$1.45; \$ 7.39      20. \$0.99; \$ 2.47; \$1.86; \$4.73; \$2.29
21. \$4.26; \$2.95; \$7.43; \$0.68; \$ 2.86      22. \$9.68; \$ 7.89; \$0.97; \$4.78; \$5.69
23. \$3.96; \$5.89; \$4.38; \$7.86; \$ 9.79      24. \$0.98; \$ 7.34; \$0.29; \$4.79; \$5.27
25. \$1.45; \$8.07; \$3.79; \$0.65; \$ 4.97      26. \$2.10; \$17.45; \$6.31; \$0.75; \$3.84
27. \$7.29; \$5.39; \$8.62; \$1.97; \$ 0.38      28. \$9.72; \$ 6.53; \$2.65; \$4.49; \$8.72
29. \$5.18; \$3.74; \$9.26; \$8.41; \$12.50      30. \$2.38; \$ 9.62; \$0.84; \$2.98; \$7.95

# Rice Drill Card in Arithmetic

## Addition of U. S. Money No. 8

Note:- Transfer each example to the work paper and number it clearly.

Arrange and add:

1. \$2.15; \$6.48; \$5.75	7. \$6.48; \$7.08; \$1.19	13. \$6.08; \$2.15; \$0.75
2. \$4.36; \$3.65; \$1.09	8. \$2.46; \$3.17; \$0.47	14. \$1.75; \$3.47; \$2.18
3. \$2.37; \$6.79; \$0.49	9. \$2.95; \$4.72; \$2.43	15. \$5.09; \$0.64; \$4.89
4. \$8.79; \$5.17; \$7.95	10. \$0.38; \$7.28; \$4.96	16. \$3.27; \$2.36; \$5.18
5. \$6.84; \$1.82; \$5.46	11. \$7.85; \$2.76; \$4.76	17. \$9.49; \$0.49; \$2.76
6. \$2.71; \$8.97; \$1.98	12. \$8.78; \$3.86; \$7.15	18. \$1.38; \$2.37; \$4.62
19. \$4.36; \$7.28; \$0.75; \$5.15; \$2.17	25. \$6.84; \$7.29; \$8.16; \$9.19; \$0.65	
20. \$3.08; \$2.39; \$6.58; \$1.53; \$6.49	26. \$7.25; \$2.50; \$0.09; \$5.05; \$4.86	
21. \$7.98; \$5.67; \$4.87; \$6.79; \$8.76	27. \$5.46; \$7.92; \$8.79; \$1.78; \$8.45	
22. \$2.46; \$7.24; \$0.48; \$3.39; \$4.65	28. \$2.79; \$4.28; \$0.65; \$2.9; \$6.39	
23. \$4.19; \$2.25; \$7.54; \$6.28; \$2.43	29. \$6.98; \$1.17; \$3.71; \$2.48; \$7.26	
24. \$5.67; \$4.36; \$1.79; \$8.64; \$7.69	30. \$5.63; \$7.28; \$4.29; \$5.36; \$2.99	

## **Rice Drill Card in Arithmetic Notation and Addition No. 9**

**Express in figures and add:**

1. 5 dollars and 35 cents; 12 dollars; 2 dollars and 5 cents
2. 4 dollars and 9 cents; 87 cents; 8 dollars
3. 12 dollars; 6 dollars and 36 cents; 7 dollars and 29 cents
4. 3 dollars and 8 cents; 17 dollars; 48 cents
5. 75 cents; 9 dollars and 65 cents; 15 dollars
6. 18 dollars and 75 cents; 19 dollars; 98 cents
7. 6 dollars; 72 cents; 11 dollars and 7 cents
8. 24 dollars and 50 cents; 83 cents; 94 cents
9. 2 dollars and 92 cents; 27 dollars; 49 dollars
10. 89 cents; \$1 and 75 cents; 2 dollars and 54 cents
11. 8 dollars and 15 cents; 75 dollars; \$1 and 56 cents
12. 15 dollars and 7 cents; 32 cents; 89 cents
13. 25 dollars and 75 cents; 18 dollars; 47 dollars
14. 7 dollars and 78 cents; 79 cents; \$1 and 5 cents
15. 9 dollars and 49 cents; 19 dollars; 99 cents
16. two and three tenths; forty-five hundredths; nine tenths
17. eighty-five hundredths; seven tenths; four and eight tenths
18. five tenths; fifteen hundredths; five and five tenths
19. four tenths; sixteen and six hundredths; two tenths
20. ten and one tenth; nine tenths; eight hundredths
21. four and five hundredths; nine tenths; one tenth
22. sixteen and five tenths; two and nine tenths; seven tenths
23. eight and two hundredths; five tenths; eight tenths
24. six and seven tenths; three tenths; thirty-two hundredths
25. nine tenths; five tenths; eight and seven hundredths
26. three and five hundredths; one tenth; eight tenths
27. six tenths; seven hundredths; eight and nine tenths
28. nineteen and nine hundredths; eight tenths; fifty-two
29. seven and two tenths; thirty-eight hundredths; six tenths
30. eighty-four hundredths; five tenths; nine and two hundredths

# Rice Drill Card in Arithmetic      Writing Numbers: Place Value of Figures No. 10

- I. Write the largest number possible with:
  1. 1, 2, 0      16. one figure
  2. 0, 2, 3      17. two figures
  3. 1, 9, 8      18. zero, two, seven
  4. 1, 3, 0      19. three, eight, four
  5. 5, 4, 6      20. one, nine, zero
  6. 3, 9, 7      21. seven, five, nine
  7. 0, 5, 1      22. six, zero, four
  8. 8, 0, 7      23. zero, nine, nine
  9. 7, 9, 8      24. four, zero, three
  10. 5, 0, 2      25. eight, one, zero, two
  11. 9, 2, 6      26. three, four, nine, zero
  12. 0, 7, 4      27. six, zero, eight, one
  13. 4, 8, 2      28. two, one, three, two
  14. 1, 9, 1      29. four, seven, six, five
  15. 0, 2, 2      30. eight, zero, nine, seven
- II. Write the smallest number possible with:
  31. six, two, eight, zero
  32. four, two fives, and zero
  33. six, zero, and two ones
  34. two sevens, nine, one
  35. eight, two zeros, seven
  36. three, five, seven, one
  37. eight, six, four, nine
  38. nine, four, four, nine
  39. seven, zero, nine, zero
  40. five, one, zero, two
  41. one, eight, one, zero
  42. four, one, five, two
  43. zero, six, one, nine
  44. eight, zero, nine, zero
  45. seven, one, zero, nine

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# **Rice Drill Card in Arithmetic      Multiplication No. 11**

**Multiply by 4:**

1-6.	345	478	629	763	587	942
------	-----	-----	-----	-----	-----	-----

**Multiply by 5:**

7-12.	237	809	396	942	654	286
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**Multiply by 6:**

13-18.	796	932	869	506	918	379
--------	-----	-----	-----	-----	-----	-----

**Multiply by 7:**

19-24.	473	165	607	864	729	516
--------	-----	-----	-----	-----	-----	-----

**Multiply by 8:**

25-30.	279	487	934	629	315	489
--------	-----	-----	-----	-----	-----	-----

**Multiply by 9:**

31-36.	957	876	796	198	865	728
--------	-----	-----	-----	-----	-----	-----

**Multiply by 6:**

37-42.	591	345	865	756	297	876
--------	-----	-----	-----	-----	-----	-----

**Multiply by 7:**

43-48.	805	762	719	637	879	715
--------	-----	-----	-----	-----	-----	-----

**Multiply by 8:**

49-54.	246	853	628	796	697	538
--------	-----	-----	-----	-----	-----	-----

**Multiply by 9:**

55-60.	843	279	456	573	648	759
--------	-----	-----	-----	-----	-----	-----

# Rice Drill Card in Arithmetic

No. 12

## Practice on Single Figures

A. I. Add Orally						II. Copy and Add					
1-10.	7	5	9	11	4	8	12	10	6	4	
	4	4	4	4	4	4	4	4	4	0	
11-20.	9	8	11	6	5	12	10	7	5	15	
	5	5	5	5	0	5	5	5	5	5	
21-30.	8	10	7	9	6	12	6	11	6	6	
	6	6	6	6	4	6	0	6	1	6	
31-40.	11	8	12	10	7	9	7	7	7	7	
	7	7	7	7	6	7	7	0	4	2	
41-50.	9	12	8	11	8	10	8	8	8	8	
	8	8	8	8	0	8	3	8	2	5	
51-60.	12	10	9	11	9	9	9	9	9	9	
	9	9	0	9	9	6	1	5	2	7	
61-70.	10	6	8	12	9	11	7	6	6	6	
	6	6	6	6	6	6	6	1	5	2	
71-80.	8	12	7	7	9	10	7	11	7	7	
	7	7	7	0	7	7	6	7	3	5	
81-90.	9	11	8	10	8	12	8	8	8	8	
	8	8	8	8	0	8	1	6	3	7	
91-100.	11	9	12	9	10	9	9	9	9	9	
	9	9	9	1	9	6	0	8	2	5	

B. I. Subtract Orally

II. Copy and Subtract

C. I. Multiply Orally

II. Copy and Multiply

NOTE. — At first the pupils should talk like primary children, saying "4 and 7 are 11"; "4 from 7 leaves 3"; "4 times 7 are 28"; but later they should generally give results only.



**Rice Drill Card in Arithmetic****Subtraction No. 13**

**Note:-** Place a slip of paper under the examples, and subtract without copying, and write the answers on the slip.

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. $\begin{array}{r} 647 \\ 235 \\ \hline \end{array}$  | 2. $\begin{array}{r} 578 \\ 423 \\ \hline \end{array}$  | 3. $\begin{array}{r} 647 \\ 516 \\ \hline \end{array}$  | 4. $\begin{array}{r} 796 \\ 482 \\ \hline \end{array}$  | 5. $\begin{array}{r} 937 \\ 524 \\ \hline \end{array}$  | 6. $\begin{array}{r} 786 \\ 254 \\ \hline \end{array}$  |
| 7. $\begin{array}{r} 596 \\ 432 \\ \hline \end{array}$  | 8. $\begin{array}{r} 875 \\ 253 \\ \hline \end{array}$  | 9. $\begin{array}{r} 764 \\ 512 \\ \hline \end{array}$  | 10. $\begin{array}{r} 869 \\ 325 \\ \hline \end{array}$ | 11. $\begin{array}{r} 965 \\ 432 \\ \hline \end{array}$ | 12. $\begin{array}{r} 879 \\ 254 \\ \hline \end{array}$ |
| 13. $\begin{array}{r} 764 \\ 375 \\ \hline \end{array}$ | 14. $\begin{array}{r} 573 \\ 286 \\ \hline \end{array}$ | 15. $\begin{array}{r} 689 \\ 458 \\ \hline \end{array}$ | 16. $\begin{array}{r} 862 \\ 573 \\ \hline \end{array}$ | 17. $\begin{array}{r} 968 \\ 279 \\ \hline \end{array}$ | 18. $\begin{array}{r} 734 \\ 446 \\ \hline \end{array}$ |
| 19. $\begin{array}{r} 768 \\ 287 \\ \hline \end{array}$ | 20. $\begin{array}{r} 681 \\ 324 \\ \hline \end{array}$ | 21. $\begin{array}{r} 506 \\ 247 \\ \hline \end{array}$ | 22. $\begin{array}{r} 604 \\ 235 \\ \hline \end{array}$ | 23. $\begin{array}{r} 902 \\ 519 \\ \hline \end{array}$ | 24. $\begin{array}{r} 670 \\ 483 \\ \hline \end{array}$ |
| 25. $\begin{array}{r} 820 \\ 465 \\ \hline \end{array}$ | 26. $\begin{array}{r} 700 \\ 516 \\ \hline \end{array}$ | 27. $\begin{array}{r} 937 \\ 208 \\ \hline \end{array}$ | 28. $\begin{array}{r} 725 \\ 230 \\ \hline \end{array}$ | 29. $\begin{array}{r} 872 \\ 356 \\ \hline \end{array}$ | 30. $\begin{array}{r} 609 \\ 256 \\ \hline \end{array}$ |
| 31. $\begin{array}{r} 732 \\ 375 \\ \hline \end{array}$ | 32. $\begin{array}{r} 865 \\ 270 \\ \hline \end{array}$ | 33. $\begin{array}{r} 935 \\ 726 \\ \hline \end{array}$ | 34. $\begin{array}{r} 845 \\ 756 \\ \hline \end{array}$ | 35. $\begin{array}{r} 614 \\ 376 \\ \hline \end{array}$ | 36. $\begin{array}{r} 739 \\ 470 \\ \hline \end{array}$ |
| 37. $\begin{array}{r} 938 \\ 709 \\ \hline \end{array}$ | 38. $\begin{array}{r} 725 \\ 576 \\ \hline \end{array}$ | 39. $\begin{array}{r} 638 \\ 369 \\ \hline \end{array}$ | 40. $\begin{array}{r} 764 \\ 528 \\ \hline \end{array}$ | 41. $\begin{array}{r} 725 \\ 607 \\ \hline \end{array}$ | 42. $\begin{array}{r} 650 \\ 396 \\ \hline \end{array}$ |
| 43. $\begin{array}{r} 560 \\ 374 \\ \hline \end{array}$ | 44. $\begin{array}{r} 308 \\ 129 \\ \hline \end{array}$ | 45. $\begin{array}{r} 678 \\ 450 \\ \hline \end{array}$ | 46. $\begin{array}{r} 750 \\ 698 \\ \hline \end{array}$ | 47. $\begin{array}{r} 728 \\ 258 \\ \hline \end{array}$ | 48. $\begin{array}{r} 586 \\ 209 \\ \hline \end{array}$ |
| 49. $\begin{array}{r} 973 \\ 430 \\ \hline \end{array}$ | 50. $\begin{array}{r} 680 \\ 495 \\ \hline \end{array}$ | 51. $\begin{array}{r} 675 \\ 509 \\ \hline \end{array}$ | 52. $\begin{array}{r} 634 \\ 365 \\ \hline \end{array}$ | 53. $\begin{array}{r} 300 \\ 123 \\ \hline \end{array}$ | 54. $\begin{array}{r} 720 \\ 436 \\ \hline \end{array}$ |
| 55. $\begin{array}{r} 816 \\ 257 \\ \hline \end{array}$ | 56. $\begin{array}{r} 600 \\ 425 \\ \hline \end{array}$ | 57. $\begin{array}{r} 789 \\ 296 \\ \hline \end{array}$ | 58. $\begin{array}{r} 796 \\ 287 \\ \hline \end{array}$ | 59. $\begin{array}{r} 687 \\ 209 \\ \hline \end{array}$ | 60. $\begin{array}{r} 796 \\ 287 \\ \hline \end{array}$ |

# Rice Drill Card in Arithmetic

# Subtraction No. 14

Note:- Transfer each example to the work paper and number it plainly.

- |               |                                |
|---------------|--------------------------------|
| 1. 675 — 528  | 31. Take 729 from 806          |
| 2. 763 — 439  | 32. From 375 take 197          |
| 3. 572 — 368  | 33. Subtract 128 from 769      |
| 4. 296 — 147  | 34. Take 348 from 657          |
| 5. 875 — 496  | 35. From 706 take 245          |
| 6. 708 — 345  | 36. Take 427 from 806          |
| 7. 920 — 678  | 37. From 964 take 508          |
| 8. 491 — 327  | 38. Take 496 from 800          |
| 9. 573 — 264  | 39. From 879 take 790          |
| 10. 819 — 597 | 40. Take 317 from 713          |
| 11. 704 — 325 | 41. From \$5 take \$2.10       |
| 12. 600 — 246 | 42. Take \$6.15 from \$10      |
| 13. 960 — 175 | 43. From \$20 take \$15.67     |
| 14. 876 — 309 | 44. Subtract \$6.78 from \$10  |
| 15. 400 — 249 | 45. Take \$1.72 from \$5       |
| 16. 375 — 186 | 46. From \$20 take \$17.25     |
| 17. 937 — 728 | 47. Take 49 cents from \$5     |
| 18. 605 — 506 | 48. From \$10 take \$3.65      |
| 19. 890 — 709 | 49. From \$20 take \$9.87      |
| 20. 900 — 827 | 50. Take \$12.51 from \$20     |
| 21. 712 — 219 | 51. \$10 less \$3.87 = ?       |
| 22. 546 — 337 | 52. Take \$2.19 from \$5       |
| 23. 688 — 499 | 53. From \$5 take \$1.11       |
| 24. 702 — 315 | 54. Take 37 cents from \$2     |
| 25. 500 — 243 | 55. From fifty cents take 19¢  |
| 26. 927 — 729 | 56. Take \$1.41 from \$2       |
| 27. 786 — 684 | 57. From a half dollar take 8¢ |
| 28. 813 — 295 | 58. Take \$3.12 from \$5       |
| 29. 705 — 507 | 59. From \$2 take 57 cents     |
| 30. 800 — 309 | 60. Take \$0.65 from \$2       |

## Denominate Numbers

## I. Recite orally.

1 ft.	=	—	in.
1 yd.	=	—	ft.
1 yd.	=	—	in.
1 qt.	=	—	pt.
1 gal.	=	—	pt.
1 pk.	=	—	qt.
1 bu.	=	—	pk.
1 bu.	=	—	qt.
1 lb.	=	—	oz.
1 T.	=	—	lb.
1 da.	=	—	hr.
1 wk.	=	—	da.
1 yr.	=	—	mo.
1 yr.	=	—	da.
1 l. yr.	=	—	da.

## II. Copy and fill the blanks.

Jan.	=	—	da.
Feb.	=	—	da.
Mar.	=	—	da.
Apr.	=	—	da.
May	=	—	da.
June	=	—	da.
July	=	—	da.
Aug.	=	—	da.
Sept.	=	—	da.
Oct.	=	—	da.
Nov.	=	—	da.
Dec.	=	—	da.
1 sq. ft.	=	—	sq. in.
1 sq. yd.	=	—	sq. ft.
1 cu. ft.	=	—	cu. in.

## Change:

- 2 ft. 6 in. to inches
- 3 yd. 2 ft. to feet
- 1½ yd. to inches
- 3 qt. 1 pt. to pints
- 5½ qt. to pints
- 3½ gal. to quarts
- 11 pk. 1 qt. to quarts
- 2¾ bu. to pecks
- 2½ bu. to quarts
- 1 bu. 1 pk. to quarts
- 2 lb. 3 oz. to ounces
- 4½ lb. to ounces
- 2 sq. ft. to sq. in.
- 1 gal. 1 qt. 1 pt. to pints
- 1 bu. 1 pk. 1 qt. to qts.

## Change:

- 64 oz. to lb.
- 70 in. to ft. and in.
- 14 ft. to yd. and ft.
- 15 ft. to inches
- 80 qt. to bu. and pk.
- 19 qt. to gal. and qt.
- 25 qt. to pints
- 100 qt. to bu. and qt.
- 12 pk. to quarts
- 50 pk. to bu. and pk.
- 75 oz. to lb. and oz.
- 40 oz. to pounds
- 1 gal. to pints
- 15 pt. to quarts
- 2½ pk. to quarts

## Preparation for Division

**Note:-** In oral work say, "4 in 25, 6 and 1 over"; or give answers only; thus, "6 and 1 over". In written work, record the answers as follows:  $6\frac{1}{4}$  or  $6\frac{1}{2}$ .

Divide by 4:

1-6.	25	14	33	27	38	46
------	----	----	----	----	----	----

Divide by 5:

7-12.	16	37	48	29	34	53
-------	----	----	----	----	----	----

Divide by 6:

13-18.	31	56	23	47	55	19
--------	----	----	----	----	----	----

Divide by 7:

19-24.	64	24	45	39	58	18
--------	----	----	----	----	----	----

Divide by 8:

25-30.	21	49	61	35	59	77
--------	----	----	----	----	----	----

Divide by 9:

31-36.	28	52	32	62	41	74
--------	----	----	----	----	----	----

Divide by 6:

37-42.	11	22	43	59	32	28
--------	----	----	----	----	----	----

Divide by 7:

43-48.	12	40	51	26	65	36
--------	----	----	----	----	----	----

Divide by 8:

49-54.	17	42	30	52	63	70
--------	----	----	----	----	----	----

Divide by 9:

55-60.	20	57	80	71	60	44
--------	----	----	----	----	----	----

## Two-Figure Multiplication

Note:- Transfer each example to the work paper and number it plainly.

1. $\begin{array}{r} 243 \\ 93 \\ \hline \end{array}$	2. $\begin{array}{r} 431 \\ 56 \\ \hline \end{array}$	3. $\begin{array}{r} 504 \\ 38 \\ \hline \end{array}$	4. $\begin{array}{r} 175 \\ 85 \\ \hline \end{array}$	5. $\begin{array}{r} 627 \\ 79 \\ \hline \end{array}$	6. $\begin{array}{r} 208 \\ 96 \\ \hline \end{array}$
---	---	---	---	---	---

7. $\begin{array}{r} 516 \\ 43 \\ \hline \end{array}$	8. $\begin{array}{r} 362 \\ 78 \\ \hline \end{array}$	9. $\begin{array}{r} 437 \\ 86 \\ \hline \end{array}$	10. $\begin{array}{r} 209 \\ 95 \\ \hline \end{array}$	11. $\begin{array}{r} 634 \\ 48 \\ \hline \end{array}$	12. $\begin{array}{r} 345 \\ 73 \\ \hline \end{array}$
---	---	---	--	--	--

13. $\begin{array}{r} 523 \\ 84 \\ \hline \end{array}$	14. $\begin{array}{r} 468 \\ 49 \\ \hline \end{array}$	15. $\begin{array}{r} 792 \\ 71 \\ \hline \end{array}$	16. $\begin{array}{r} 234 \\ 60 \\ \hline \end{array}$	17. $\begin{array}{r} 369 \\ 91 \\ \hline \end{array}$	18. $\begin{array}{r} 437 \\ 89 \\ \hline \end{array}$
--	--	--	--	--	--

19. $\begin{array}{r} 560 \\ 74 \\ \hline \end{array}$	20. $\begin{array}{r} 326 \\ 38 \\ \hline \end{array}$	21. $\begin{array}{r} 219 \\ 83 \\ \hline \end{array}$	22. $\begin{array}{r} 697 \\ 45 \\ \hline \end{array}$	23. $\begin{array}{r} 482 \\ 29 \\ \hline \end{array}$	24. $\begin{array}{r} 275 \\ 92 \\ \hline \end{array}$
--	--	--	--	--	--

25. $\begin{array}{r} 569 \\ 18 \\ \hline \end{array}$	26. $\begin{array}{r} 163 \\ 87 \\ \hline \end{array}$	27. $\begin{array}{r} 357 \\ 69 \\ \hline \end{array}$	28. $\begin{array}{r} 702 \\ 19 \\ \hline \end{array}$	29. $\begin{array}{r} 522 \\ 80 \\ \hline \end{array}$	30. $\begin{array}{r} 243 \\ 98 \\ \hline \end{array}$
--	--	--	--	--	--

31. $\begin{array}{r} 435 \\ 65 \\ \hline \end{array}$	32. $\begin{array}{r} 746 \\ 28 \\ \hline \end{array}$	33. $\begin{array}{r} 283 \\ 53 \\ \hline \end{array}$	34. $\begin{array}{r} 349 \\ 82 \\ \hline \end{array}$	35. $\begin{array}{r} 241 \\ 79 \\ \hline \end{array}$	36. $\begin{array}{r} 648 \\ 63 \\ \hline \end{array}$
--	--	--	--	--	--

37. $\begin{array}{r} 653 \\ 35 \\ \hline \end{array}$	38. $\begin{array}{r} 425 \\ 72 \\ \hline \end{array}$	39. $\begin{array}{r} 495 \\ 70 \\ \hline \end{array}$	40. $\begin{array}{r} 121 \\ 39 \\ \hline \end{array}$	41. $\begin{array}{r} 332 \\ 47 \\ \hline \end{array}$	42. $\begin{array}{r} 705 \\ 67 \\ \hline \end{array}$
--	--	--	--	--	--

43. $\begin{array}{r} 476 \\ 65 \\ \hline \end{array}$	44. $\begin{array}{r} 654 \\ 27 \\ \hline \end{array}$	45. $\begin{array}{r} 273 \\ 46 \\ \hline \end{array}$	46. $\begin{array}{r} 462 \\ 57 \\ \hline \end{array}$	47. $\begin{array}{r} 908 \\ 24 \\ \hline \end{array}$	48. $\begin{array}{r} 796 \\ 69 \\ \hline \end{array}$
--	--	--	--	--	--

49. $\begin{array}{r} 706 \\ 29 \\ \hline \end{array}$	50. $\begin{array}{r} 576 \\ 47 \\ \hline \end{array}$	51. $\begin{array}{r} 567 \\ 75 \\ \hline \end{array}$	52. $\begin{array}{r} 746 \\ 53 \\ \hline \end{array}$	53. $\begin{array}{r} 673 \\ 34 \\ \hline \end{array}$	54. $\begin{array}{r} 765 \\ 72 \\ \hline \end{array}$
--	--	--	--	--	--

55. $\begin{array}{r} 573 \\ 67 \\ \hline \end{array}$	56. $\begin{array}{r} 796 \\ 87 \\ \hline \end{array}$	57. $\begin{array}{r} 263 \\ 64 \\ \hline \end{array}$	58. $\begin{array}{r} 789 \\ 98 \\ \hline \end{array}$	59. $\begin{array}{r} 609 \\ 57 \\ \hline \end{array}$	60. $\begin{array}{r} 896 \\ 79 \\ \hline \end{array}$
--	--	--	--	--	--

## Multiplication

Note:- Transfer each example to the work paper and number it plainly.

Multiply:

1. 124 by 46
2. 472 by 37
3. 726 by 25
4. 769 by 27
5. 345 by 45
6. 705 by 95
7. 468 by 32
8. 798 by 92
9. 634 by 78
10. 804 by 98
11. 789 by 61
12. 648 by 56
13. 879 by 83
14. 542 by 47
15. 484 by 35
16. 279 by 24
17. 353 by 82
18. 366 by 64
19. 269 by 67
20. 751 by 96
21. 415 by 97
22. 596 by 79
23. 678 by 18
24. 473 by 36
25. 986 by 25
26. 265 by 74
27. 121 by 23
28. 527 by 86
29. 296 by 89
30. 743 by 94

Perform the Multiplication

31.  $754 \times 52$
32.  $397 \times 29$
33.  $989 \times 87$
34.  $863 \times 42$
35.  $529 \times 31$
36.  $897 \times 28$
37.  $467 \times 49$
38.  $792 \times 41$
39.  $687 \times 34$
40.  $598 \times 73$
41.  $872 \times 84$
42.  $935 \times 43$
43.  $725 \times 79$
44.  $573 \times 39$
45.  $279 \times 91$
46.  $679 \times 58$
47.  $798 \times 93$
48.  $497 \times 85$
49.  $578 \times 62$
50.  $879 \times 48$
51.  $547 \times 26$
52.  $876 \times 59$
53.  $747 \times 74$
54.  $567 \times 75$
55.  $462 \times 57$
56.  $357 \times 63$
57.  $476 \times 65$
58.  $676 \times 76$
59.  $365 \times 32$
60.  $809 \times 97$

**Rice Drill Card in Arithmetic****Division No. 19**

**Note:- Transfer each example to the work paper and label it plainly.**

(1) 32)864	(2) 21)819	(3) 63)882	(4) 52)624	(5) 35)805
(6) 43)989	(7) 25)650	(8) 21)609	(9) 34)612	(10) 71)923
(11) 34)918	(12) 42)756	(13) 24)648	(14) 46)966	(15) 31)899
(16) 71)1704	(17) 64)2304	(18) 92)2300	(19) 84)3612	(20) 65)3380
(21) 65)2015	(22) 72)3672	(23) 85)6375	(24) 91)7553	(25) 54)2916
(26) 45)1800	(27) 51)1224	(28) 74)7252	(29) 83)3071	(30) 94)7802
(31) 62)3472	(32) 73)5329	(33) 87)6699	(34) 81)5346	(35) 76)4788
(36) 75)4650	(37) 53)2385	(38) 61)4514	(39) 95)2185	(40) 33)1089
(41) 82)2214	(42) 23)1495	(43) 56)1904	(44) 93)4836	(45) 86)3698

**Rice Drill Card in Arithmetic****Division No. 20**

**Note:-** Transfer each example to the work paper and label it plainly.

**Divide:**

1. 7872 by 32
2. 8748 by 54
3. 2814 by 21
4. 9486 by 62
5. 5875 by 25
6. 9135 by 45
7. 7812 by 31
8. 6144 by 24
9. 1872 by 52
10. 5704 by 23

**Perform the Divisions:**

11.  $8304 \div 24$
12.  $5676 \div 43$
13.  $11016 \div 51$
14.  $4515 \div 21$
15.  $5964 \div 42$
16.  $9922 \div 41$
17.  $8385 \div 65$
18.  $3348 \div 31$
19.  $9125 \div 25$
20.  $8216 \div 13$

(21)	(22)	(23)	(24)	(25)
53)13038	42)10122	75)42525	45)16830	64)41856

(26)	(27)	(28)	(29)	(30)
73)34091	42)14952	65)30940	72)55080	34)18258

(31)	(32)	(33)	(34)	(35)
64)16832	67)47235	43)22188	91)15379	76)45752

(36)	(37)	(38)	(39)	(40)
51)32844	70)29750	96)19968	75)12150	31)15531

(41)	(42)	(43)	(44)	(45)
73)22995	95)19095	22)13574	72)18360	85)17255



**Rice Drill Card in Arithmetic****Addition No. 21**

**Note:-** Place a slip of paper under the examples, add without copying, and write the answers on the slip.

(1)	(2)	(3)	(4)	(5)	(6)
687	568	497	975	785	948
795	294	850	286	573	685
<u>849</u>	<u>973</u>	<u>379</u>	<u>798</u>	<u>684</u>	<u>796</u>
(7)	(8)	(9)	(10)	(11)	(12)
279	728	879	946	796	739
908	496	628	789	485	948
767	865	590	297	864	697
<u>985</u>	<u>987</u>	<u>786</u>	<u>675</u>	<u>958</u>	<u>789</u>
(13)	(14)	(15)	(16)	(17)	(18)
576	876	496	685	957	798
792	539	875	709	684	286
948	694	548	864	790	759
457	748	727	397	468	485
<u>869</u>	<u>965</u>	<u>989</u>	<u>578</u>	<u>589</u>	<u>896</u>
(19)	(20)	(21)	(22)	(23)	(24)
589	478	953	864	795	648
793	986	796	296	468	975
828	729	580	579	908	386
607	568	879	785	379	897
<u>965</u>	<u>677</u>	<u>487</u>	<u>968</u>	<u>687</u>	<u>469</u>
(25)	(26)	(27)	(28)	(29)	(30)
487	962	769	869	679	936
986	796	852	473	845	798
569	478	547	958	953	645
807	385	608	795	708	279
958	809	983	679	596	987
345	657	496	868	879	834
598	765	649	496	683	579
485	698	586	728	957	846
<u>869</u>	<u>587</u>	<u>967</u>	<u>875</u>	<u>798</u>	<u>957</u>

# Rice Drill Card in Arithmetic

Tests No. 22

Note:— Transfer each example to the work paper and label it plainly.

- |                       |   |
|-----------------------|---|
| A. 1. $6205+486+7369$ | 6. Divide 1976 by 8                       |
| 2. $9735-3826$        | 7. Divide 16,279 by 73                    |
| 3. $\$20-\$12.75$     | 8. Change $1\frac{1}{4}$ yd. to inches    |
| 4. $6789\times 45$    | 9. $4073\times 608$                       |
| 5. $19,548\div 54$    | 10. $7165+207+6239$                       |
| <hr/>                 |   |
| B. 1. $5372+97+687$   | 6. Divide 9738 by 6                       |
| 2. $8405-2609$        | 7. Take $\$7.12$ from $\$10$              |
| 3. $\$50-\$22.36$     | 8. From $\$100$ take $\$31.25$            |
| 4. $7968\times 36$    | 9. Multiply 250 by 90                     |
| 5. $17,546\div 62$    | 10. $37+694+89+6954$                      |
| <hr/>                 |   |
| C. 1. $768+92+604+86$ | 6. Change $1\frac{1}{2}$ lb. to ounces    |
| 2. $6074-2895$        | 7. From $\$20$ take $\$8\frac{1}{2}$      |
| 3. $648\times 709$    | 8. Take $\$12.67$ from $\$50$             |
| 4. $5643\div 9$       | 9. Multiply 706 by 29                     |
| 5. $32,164\div 86$    | 10. $\$7.92+\$0.75+\$8.37$                |
| <hr/>                 |   |
| D. 1. $73+698+9+64$   | 6. Change $2\frac{3}{4}$ bu. to pecks     |
| 2. $8600-2963$        | 7. Take $\$2\frac{1}{2}$ from ten dollars |
| 3. $7950\times 68$    | 8. From $\$10$ take $\$3.37$              |
| 4. $17,402\div 7$     | 9. Multiply 1728 by 9                     |
| 5. $27,648\div 48$    | 10. $\$8.64+\$25+\$17.50$                 |

Add:

- |             |          |          |          |          |
|-------------|----------|----------|----------|----------|
| E. (1) 8679 | (2) 6795 | (3) 9685 | (4) 7965 | (5) 4978 |
| 4208        | 2586     | 7849     | 2786     | 8695     |
| 7396        | 9271     | 6374     | 9527     | 7253     |
| 5867        | 8047     | 8967     | 6874     | 9769     |
| 9785        | 3697     | 9789     | 8969     | 5487     |

# Rice Drill Card in Arithmetic

## Subtraction No. 23

Note:- Place a slip of paper under the examples,  
subtract without copying, and write the  
answers on the slip.

(1) 6745 <u>3413</u>	(2) 8567 <u>6248</u>	(3) 5708 <u>2493</u>	(4) 7965 <u>2474</u>	(5) 9657 <u>3895</u>
(6) 8647 <u>2738</u>	(7) 9638 <u>5274</u>	(8) 7392 <u>3867</u>	(9) 8064 <u>2981</u>	(10) 5070 <u>4638</u>
(11) 6295 <u>4769</u>	(12) 7965 <u>2439</u>	(13) 5794 <u>2836</u>	(14) 4706 <u>1329</u>	(15) 9728 <u>1509</u>
(16) 7859 <u>3762</u>	(17) 8090 <u>2738</u>	(18) 9678 <u>2756</u>	(19) 7582 <u>3198</u>	(20) 9073 <u>2694</u>
(21) 57246 <u>23917</u>	(22) 81629 <u>53278</u>	(23) 96025 <u>17479</u>	(24) 72053 <u>54729</u>	(25) 86137 <u>35728</u>
(26) 79409 <u>35623</u>	(27) 76095 <u>37267</u>	(28) 90607 <u>37469</u>	(29) 12008 <u>11789</u>	(30) 59642 <u>23718</u>
(31) 91876 <u>28967</u>	(32) 56925 <u>17846</u>	(33) 96500 <u>74249</u>	(34) 43170 <u>13948</u>	(35) 68725 <u>45187</u>
(36) 70586 <u>26937</u>	(37) 49052 <u>37847</u>	(38) 70068 <u>31649</u>	(39) 68079 <u>23695</u>	(40) 76904 <u>27685</u>
(41) 49672 <u>34758</u>	(42) 86007 <u>23574</u>	(43) 62004 <u>61678</u>	(44) 92060 <u>37426</u>	(45) 70809 <u>36725</u>

# Rice Drill Card in Arithmetic      Multiplication No. 24

Note:- Transfer each example to the work paper  
and label it plainly.

(1) 7684 <u>42</u>	(2) 4857 <u>65</u>	(3) 9368 <u>37</u>	(4) 6295 <u>23</u>	(5) 8624 <u>54</u>
(6) 2753 <u>36</u>	(7) 5946 <u>72</u>	(8) 7286 <u>45</u>	(9) 8579 <u>52</u>	(10) 6395 <u>47</u>
(11) 4769 <u>28</u>	(12) 8376 <u>48</u>	(13) 9087 <u>37</u>	(14) 6493 <u>56</u>	(15) 7968 <u>82</u>
(16) 684 <u>509</u>	(17) 7495 <u>49</u>	(18) 6974 <u>78</u>	(19) 8426 <u>92</u>	(20) 978 <u>290</u>
(21) 8756 <u>64</u>	(22) 5968 <u>75</u>	(23) 9758 <u>86</u>	(24) 796 <u>407</u>	(25) 6879 <u>38</u>
(26) 4869 <u>58</u>	(27) 9682 <u>93</u>	(28) 7863 <u>35</u>	(29) 5879 <u>67</u>	(30) 587 <u>430</u>
(31) 579 <u>608</u>	(32) 3896 <u>53</u>	(33) 8695 <u>85</u>	(34) 728 <u>706</u>	(35) 6958 <u>95</u>
(36) 9576 <u>35</u>	(37) 6978 <u>59</u>	(38) 4879 <u>87</u>	(39) 5727 <u>69</u>	(40) 8796 <u>34</u>
(41) 8279 <u>46</u>	(42) 5769 <u>73</u>	(43) 9748 <u>89</u>	(44) 7968 <u>94</u>	(45) 6879 <u>68</u>

## REDUCTION, ADDITION, AND SUBTRACTION

Change as indicated:

1-5.  $\frac{1}{2} = \frac{\quad}{8}$ ;  $\frac{1}{3} = \frac{\quad}{6}$ ;  $\frac{1}{4} = \frac{\quad}{12}$ ;  $\frac{3}{4} = \frac{\quad}{16}$ ;  $\frac{1}{5} = \frac{\quad}{10}$

6-10.  $\frac{2}{5} = \frac{\quad}{20}$ ;  $\frac{3}{5} = \frac{\quad}{10}$ ;  $\frac{5}{6} = \frac{\quad}{12}$ ;  $\frac{6}{8} = \frac{\quad}{4}$ ;  $\frac{10}{12} = \frac{\quad}{3}$

11-15.  $\frac{4}{5} = \frac{\quad}{10}$ ;  $\frac{10}{12} = \frac{\quad}{6}$ ;  $\frac{7}{8} = \frac{\quad}{16}$ ;  $\frac{10}{12} = \frac{\quad}{3}$ ;  $\frac{3}{8} = \frac{\quad}{16}$

I. Work orally. II. Copy and find answers.

1-10. Change to fourths:

$\frac{1}{2}$ ;  $\frac{3}{8}$ ;  $\frac{5}{8}$ ;  $\frac{3}{12}$ ;  $\frac{6}{12}$ ;  $\frac{4}{16}$ ;  $\frac{8}{16}$ ;  $\frac{9}{12}$ ;  $\frac{12}{12}$ ;  $\frac{15}{16}$

11-15. Change to 8ths:  $\frac{1}{2}$ ;  $\frac{3}{4}$ ;  $\frac{6}{8}$ ;  $\frac{3}{4}$ ;  $\frac{10}{8}$ 

16.  $\frac{1}{2} + \frac{1}{4}$

31.  $\frac{3}{4} - \frac{1}{2}$

46.  $\frac{1}{2} + \frac{1}{3}$

17.  $\frac{3}{4} + \frac{1}{8}$

32.  $\frac{3}{8} - \frac{1}{4}$

47.  $\frac{1}{2} + \frac{2}{3}$

18.  $\frac{3}{8} + \frac{1}{4}$

33.  $\frac{1}{3} - \frac{1}{4}$

48.  $\frac{1}{4} + \frac{1}{8}$

19.  $\frac{3}{4} + \frac{1}{2}$

34.  $\frac{3}{8} - \frac{3}{10}$

49.  $\frac{5}{8} + \frac{2}{3}$

20.  $\frac{7}{8} + \frac{1}{4}$

35.  $\frac{5}{8} - \frac{1}{2}$

50.  $\frac{7}{8} + \frac{3}{4}$

21.  $\frac{2}{3} + \frac{1}{8}$

36.  $\frac{11}{12} - \frac{1}{3}$

51.  $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$

22.  $\frac{5}{8} + \frac{1}{3}$

37.  $\frac{5}{8} - \frac{2}{3}$

52.  $\frac{1}{2} + \frac{1}{4} + \frac{3}{8}$

23.  $\frac{2}{3} + \frac{1}{8}$

38.  $\frac{2}{3} - \frac{7}{12}$

53.  $\frac{7}{8} + \frac{3}{4} + \frac{1}{2}$

24.  $\frac{5}{8} + \frac{1}{2}$

39.  $\frac{7}{10} - \frac{2}{5}$

54.  $\frac{1}{2} + \frac{1}{3} + \frac{1}{4}$

25.  $\frac{1}{3} + \frac{2}{5}$

40.  $\frac{5}{12} - \frac{1}{3}$

55.  $\frac{2}{3} + \frac{3}{4} + \frac{1}{8}$

26.  $\frac{3}{8} + \frac{3}{10}$

41.  $\frac{7}{8} - \frac{1}{4}$

56.  $\frac{5}{8} + \frac{3}{4} + \frac{1}{2}$

27.  $\frac{4}{5} + \frac{1}{10}$

42.  $\frac{3}{4} - \frac{3}{8}$

57.  $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$

28.  $\frac{7}{10} + \frac{2}{5}$

43.  $\frac{9}{10} - \frac{4}{5}$

58.  $\frac{3}{4} + \frac{3}{8} + \frac{1}{2}$

29.  $\frac{7}{12} + \frac{1}{3}$

44.  $\frac{7}{8} - \frac{3}{4}$

59.  $\frac{5}{8} + \frac{3}{4} + \frac{2}{3}$

30.  $\frac{2}{3} + \frac{5}{12}$

45.  $\frac{11}{12} - \frac{1}{8}$

60.  $\frac{11}{12} + \frac{5}{8} + \frac{3}{4}$

## FRACTIONAL PARTS OF INTEGERS

Note :- Transfer each example to the work paper  
and label it plainly.

1- 6.	Find $\frac{1}{2}$ of				
24	38	46	174	366	288
7-12.	Find $\frac{1}{3}$ of				
36	57	117	414	531	1728
13-18.	Find $\frac{2}{3}$ of				
45	72	120	87	1728	624
19-24.	Find $\frac{1}{4}$ of				
84	96	144	500	648	892
25-30.	Find $\frac{3}{4}$ of				
48	52	256	1728	1916	1000
31-36.	Find $\frac{5}{8}$ of				
\$75	\$90	\$230	\$325	\$675	\$1250
37-42.	Find $\frac{5}{8}$ of				
\$24	\$48	\$150	\$252	\$720	\$894
43-48.	Find $\frac{3}{4}$ of				
\$96	\$112	\$256	\$600	\$1000	\$1656
49-54.	Find $\frac{5}{8}$ of				
27	108	144	729	1008	1089
55-60.	Find $\frac{7}{8}$ of				
96	128	200	232	992	1000

**Rice Drill Card in Arithmetic****Division No. 27**

**Note:-** Transfer each example to the work paper and label it plainly.

**Divide by 4:**

1-5.	2256	1488	1700	3072	2468
------	------	------	------	------	------

**Divide by 5:**

6-10.	1985	3045	3625	2365	1480
-------	------	------	------	------	------

**Divide by 6:**

11-15.	4410	2448	5802	3498	3714
--------	------	------	------	------	------

**Divide by 7:**

16-20.	3682	3311	1456	4858	6153
--------	------	------	------	------	------

**Divide by 8:**

21-25.	2920	6368	6744	3752	7264
--------	------	------	------	------	------

**Divide by 9:**

26-30.	4473	6165	6651	7434	8802
--------	------	------	------	------	------

**Divide by 7:**

31-35.	18928	37534	27629	11123	32606
--------	-------	-------	-------	-------	-------

**Divide by 8:**

36-40.	50192	40528	29664	48072	63568
--------	-------	-------	-------	-------	-------

**Divide by 9:**

41-45.	24885	66222	41517	53064	74466
--------	-------	-------	-------	-------	-------

**Rice Drill Card in Arithmetic****Division No. 28**

**Note:-** Transfer each example to the work paper and label it plainly.

**Divide:****Perform the divisions:**

1. 16861 by 72
2. 10003 by 24
3. 16849 by 32
4. 10505 by 36
5. 22543 by 43
6. 10773 by 34
7. 12517 by 61
8. 14173 by 92
9. 16263 by 27
10. 36434 by 45
11. 4066 by 81
12. 3649 by 52
13. 7145 by 31
14. 5607 by 16
15. 4475 by 42

16.  $8545 \div 41$
17.  $2453 \div 18$
18.  $7563 \div 25$
19.  $36210 \div 85$
20.  $19955 \div 28$
21.  $2693 \div 92$
22.  $3461 \div 65$
23.  $4943 \div 54$
24.  $5603 \div 64$
25.  $7482 \div 95$
26.  $10709 \div 15$
27.  $6597 \div 26$
28.  $8224 \div 27$
29.  $13462 \div 56$
30.  $17701 \div 22$

(31)	(32)	(33)	(34)	(35)
37)26936	63)25578	84)42084	35)8855	76)46968

(36)	(37)	(38)	(39)	(40)
98)8107	21)2007	53)4483	62)4914	78)2329

(41)	(42)	(43)	(44)	(45)
20)10137	48)5795	73)51282	14)2993	40)24399



## DENOMINATE NUMBERS

## I. Recite orally.

1. 1 lb. = — oz.
2.  $2\frac{1}{4}$  lb. = — oz.
3. 32 oz. = — lb.
4.  $\frac{3}{4}$  lb. = — oz.
5. 96 oz. = — lb.
6. 1 T. = — lb.
7.  $1\frac{1}{2}$  T. = — lb.
8.  $\frac{1}{4}$  T. = — lb.
9. 1 gal. = — qt.
10. 1 gal. = — pt.
11.  $1\frac{1}{2}$  gal. = — qt.
12. 12 qt. = — gal.
13. 12 qt. = — pt.
14. 1 bu. = — qt.
15. 1 bu. = — pk.

## II. Copy and fill the blanks.

16. 1 pk. = — qt.
17. 40 qt. = — pk.
18. 12 pk. = — qt.
19.  $2\frac{3}{4}$  bu. = — pk.
20. 54 in. = — ft.
21.  $1\frac{1}{2}$  yd. = — in.
22.  $2\frac{1}{2}$  yd. = — ft.
23. 12 ft. = — yd.
24. 5 hr. = — min.
25. 1 da. = — hr.
26.  $1\frac{1}{4}$  hr. = — min.
27.  $\frac{3}{4}$  hr. = — min.
28. 1 mi. = — rd.
29. 1 rd. = — ft.
30.  $1\frac{1}{2}$  rd. = — ft.

## Express without change in value:

31.  $3\frac{3}{4}$  lb. as ounces.
32. 128 oz. as pounds.
33.  $2\frac{1}{4}$  T. as pounds.
34. 6000 lb. as tons.
35.  $7\frac{1}{2}$  gal. as quarts.
36. 4 gal. as pints.
37. 96 qt. as gals.
38.  $2\frac{3}{4}$  bu. as quarts.
39.  $12\frac{1}{2}$  bu. as pecks.
40. 100 qt. as pecks.
41. 100 pk. as quarts.
42. 100 pk. as bushels.
43.  $3\frac{1}{2}$  yd. as feet.
44. 100 yd. as feet.
45. 100 ft. as yards.
46. 4 ft. 11 in. as inches.
47. 66 in. as feet.
48. 65 in. as feet.
49. 4 rd. as feet.
50. 1 mi. as rods.
51. 1 mi. as feet.
52.  $\frac{1}{2}$  mi. as feet.
53.  $\frac{1}{4}$  mi. as feet.
54. 1 sq. ft. as sq. in.
55. 3 sq. ft. as sq. in.
56. Surface  $6'' \times 3''$  as sq. in.
57. Surface  $8' \times 4'$  as sq. ft.
58. 1 doz. as units.
59. 1 gross as units.
60. 1 score as units.

# Rice Drill Card in Arithmetic

Tests No. 30

## A. Arrange in columns and add:

1. \$5.32; \$3.48; \$7.92; \$12.50; \$9.27; \$2.35
2. \$6.98; \$1.75; \$8.34; \$9.16; \$11.45; \$19.67
3. \$7.54; \$25; \$18.62; \$19.65; \$5.75; \$13.89
4. \$2.14; \$9.67; \$7.26; \$0.78; \$6.92; \$17.46
5. \$14.72; \$7.59; \$16; \$8.42; \$3.94; \$12.62

- |               |               |                    |
|---------------|---------------|--------------------|
| B. 1. 406—237 | 6. 5000—1728  | 11. \$12.65—\$3.86 |
| 2. 700—329    | 7. 4906—2837  | 12. \$20—\$13.52   |
| 3. 950—462    | 8. 7165—4276  | 13. \$50—\$37.50   |
| 4. 816—527    | 9. 6358—2479  | 14. \$100—\$46.78  |
| 5. 600—168    | 10. 8295—5577 | 15. \$75—\$69.91   |

- |                 |                                   |
|-----------------|-----------------------------------|
| C. 1. 3000—1256 | 6. Take \$3.68 from ten dollars.  |
| 2. 1728×86      | 7. From five dollars take \$2.49. |
| 3. 6831÷9       | 8. \$50 minus \$40 equals what?   |
| 4. 1663÷8       | 9. \$50 plus \$40 equals what?    |
| 5. 24949÷41     | 10. Subtract \$37.67 from \$100.  |

- |               |                                   |
|---------------|-----------------------------------|
| D. 1. 798×430 | 6. \$20 less \$13.75 equals what? |
| 2. 879×607    | 7. Take \$17.82 from \$50.        |
| 3. 2360÷20    | 8. From \$1000 take \$675.        |
| 4. 1728÷30    | 9. Take 1 pt. from 1 gal.         |
| 5. 6400÷50    | 10. From 1 pk. take ½ of a qt.    |

- |              |               |                |
|--------------|---------------|----------------|
| E. 1. 729×64 | 8. 692—399    | 15. 2791÷9     |
| 2. 486×27    | 9. 1987—989   | 16. 60570÷90   |
| 3. 809×76    | 10. 1792—1389 | 17. 4508÷98    |
| 4. 857÷24    | 11. 698×79    | 18. \$2.65×87  |
| 5. 3341÷72   | 12. 489×92    | 19. \$12.50×24 |
| 6. 958÷35    | 13. 936×39    | 20. \$37.75×25 |
| 7. 2557÷48   | 14. 798×97    |                |

## **A WORK-BOOK IN ARITHMETIC**

### **PART TWO**

The most economical way to give children the power to understand the language of arithmetical problems is to study real concrete problems with them and then interpret cooperatively the language of similar problems.

## UNITED STATES MONEY

The smallest piece of money that we use is the *cent*. 100 cents are equal to one *dollar*. Cent coins are made of bronze which is nearly all copper.

The five-cent piece is made of nickel and copper and it is frequently called a *nickel*.

The silver coins are the *dollar*, the *half dollar* or fifty-cent piece, the *quarter dollar* or twenty-five cent piece, and the *dime* or ten-cent piece.

We also use paper money. These paper bills are called *bank bills* and sometimes *bank notes*. We find the following bank bills in common use: one dollar, two dollars, five dollars, ten dollars and twenty dollars.

In problems and written work it is customary to use a mark, called the dollar sign (\$), for dollars and for cents the abbreviation ct. or the cent sign (¢), made by drawing a slanting line through the letter c.

In writing United States money a period, called a decimal point, is placed between dollars and cents. Cents occupy two places at the right of the decimal point.

Two dollars and thirty-five cents is written	\$2.35
Three dollars and five cents is written	\$3.05
Forty-five cents may be written	45¢, 45ct., \$.45, \$0.45

NOTE:—The pupils should be given much practice in taking down sums of money from dictation and in arranging them for addition and subtraction.

## UNITED STATES MONEY : ADDITION

No. 31-2

## A. I. Add orally.

## II. Copy and add.

1. 7¢	2. 9¢	3. 4¢	4. 8¢	5. 3¢	6. 5¢
4	5	9	3	8	9
8	7	5	9	7	4
9	6	6	7	9	7
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
¢					

## B. Add and express as dollars and cents :

1. 48¢	2. 48¢	3. 92¢	4. 86¢	5. 75¢
85	35	49	17	18
57	64	73	69	89
53	27	65	78	48
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
243¢ = \$2.43				

## C. Add :

1. \$5	2. \$7	3. \$9	4. \$12	5. \$24	6. \$72
7	4	3	25	16	19
9	9	5	16	53	64
6	6	7	48	72	87
4	8	6	34	47	28
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
\$					

## D. I. Arrange, add, and express the answer as dollars and cents.

## II. Take from dictation, add, and express as dollars and cents.

1. 25¢, 58¢, 16¢, 24¢, 27¢. 4. 96¢, 18¢, 74¢, 89¢, 21¢.  
 2. 48¢, 17¢, 53¢, 35¢, 19¢. 5. 87¢, 42¢, 56¢, 15¢, 39¢.  
 3. 79¢, 24¢, 68¢, 13¢, 76¢. 6. 29¢, 78¢, 45¢, 67¢, 43¢.

## E. Arrange and add :

1. \$12; \$6; \$15; \$7; \$25. 4. \$21; \$37; \$16; \$38; \$6.  
 2. \$8; \$18; \$9; \$29; \$4. 5. \$39; \$11; \$42; \$9; \$59.  
 3. \$24; \$5; \$17; \$45; \$49. 6. \$7; \$9; \$6; \$14; \$16.

## UNITED STATES MONEY

[ Oral and Sight ]

- A. 1. How many cents in a nickel?  
2. How many cents in a dime?  
3. How many nickels in a dime?  
4. Name something that costs a nickel.  
5. A half dollar is worth how many dimes?  
6. How many nickels in a half dollar?  
7. A half dollar is worth how many nickels?  
8. Name the four silver coins.

In arranging sums of money for addition and subtraction the decimal points must be written in a vertical line so that dollars will stand under dollars and cents under cents. The dollar sign should be placed before the first number of the column and before the answer. When all of the numbers are small, the cent sign or the abbreviation for cents may be used and it should be written after the numbers. Do not use the dollar sign and the cent sign with the same number.

B. Copy and add:

1. \$1.24 .45 <u>2.28</u>	2. \$2.15 1.48 <u>.69</u>	3. \$0.54 1.22 <u>2.75</u>	4. \$1.19 7.64 <u>1.27</u>	5. \$1.16 1.82 <u>2.49</u>
---------------------------------	---------------------------------	----------------------------------	----------------------------------	----------------------------------

C. Copy and subtract:

1. \$4.50 <u>1.35</u>	2. \$3.25 <u>.72</u>	3. \$5.75 <u>2.50</u>	4. \$8.50 <u>5.75</u>	5. \$6.48 <u>2.76</u>
6. \$4.98 <u>1.69</u>	7. \$9.10 <u>3.78</u>	8. \$7.42 <u>3.54</u>	9. \$2.00 <u>1.45</u>	10. \$5.00 <u>2.86</u>

D. Copy and add :

1. \$5.25	2. \$2.25	3. \$3.35	4. \$7.46	5. \$3.24
.37	1.74	1.28	1.41	2.78
<u>1.79</u>	<u>.63</u>	<u>2.76</u>	<u>2.86</u>	<u>5.43</u>

E. Write in figures and add :

1. Two dollars and ten cents ; seventy-five cents ; six dollars and eight cents.
2. Two dollars and forty-eight cents ; seven dollars and thirty-nine cents ; fifty-six cents.
3. Four dollars and seventy-three cents ; one dollar and forty-nine cents ; three dollars and fifteen cents.
4. Fifteen dollars and twelve cents ; eleven dollars and nineteen cents ; five dollars and eight cents.
5. Sixteen dollars and sixty cents ; twenty dollars and forty-eight cents ; fifty-four cents.

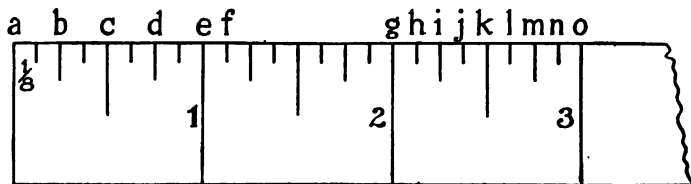
F. Take each sum from ten dollars :

- |           |           |           |           |            |
|-----------|-----------|-----------|-----------|------------|
| 1. \$5.75 | 2. \$4.68 | 3. \$9.19 | 4. \$6.21 | 5. \$1.75  |
| 6. \$8.71 | 7. \$6.28 | 8. \$3.46 | 9. \$4.69 | 10. \$2.37 |

G. Perform the subtraction :

- |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 1. 70¢    | 2. 50¢    | 3. 90¢    | 4. 80¢    | 5. 60¢    | 6. 40¢    |
| <u>40</u> | <u>30</u> | <u>50</u> | <u>60</u> | <u>20</u> | <u>25</u> |
| 7. 45¢    | 8. 52¢    | 9. 65¢    | 10. 56¢   | 11. 68¢   | 12. 75¢   |
| <u>20</u> | <u>34</u> | <u>12</u> | <u>26</u> | <u>37</u> | <u>32</u> |

## GETTING ACQUAINTED WITH THE RULER



## Linear Measure

$$12 \text{ in.} = 1 \text{ ft.}$$

$$3 \text{ ft.} = 1 \text{ yd.}$$

$$36 \text{ in.} = 1 \text{ yd.}$$

## Manual Training Table

$$12'' = 1'$$

$$3' = 1 \text{ yd.}$$

$$36'' = 1 \text{ yd.}$$

Linear measure is used in measuring distances and the dimensions of surfaces and solids.

Note.—Double primes ("), used after a number, are read inch or inches; a single prime (') is read foot or feet.

$\frac{1}{4}''$  is read one fourth of an inch, one fourth inch, one quarter of an inch, or one quarter inch.

A. In the picture of a ruler, what is the distance from:

1. a to b?

5. e to f?

9. b to c?

2. a to c?

6. a to o?

10. d to f?

3. a to d?

7. a to g?

11. c to e?

4. a to e?

8. e to o?

12. f to g?

B. In the picture of a ruler, what part of an inch is shown by the following lines:

1. g—h?

4. g—k?

7. l—o?

10. b—d?

2. g—i?

5. g—l?

8. j—o?

11. d—f?

3. g—j?

6. g—n?

9. a—b?

12. c—f?



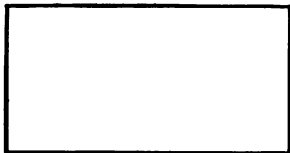
- C. 1. With your ruler measure this square, draw one like it and divide it into halves.



2. Draw a second square and divide it into halves in another way.

3. Draw a third square and divide it into halves in a third way.

4. Measure this oblong, draw one like it and divide it into halves.



5. Divide each half into halves.

6. Shade one fourth of your oblong.

- D. By means of your two forefingers show the following distances on your ruler:

1.  $\frac{1}{2}$  in. 2. 1 in. 3.  $\frac{3}{4}$  in. 4.  $1\frac{1}{2}$  in. 5. 2 in. 6. 3 in.

- E. Show the following distances:

1. 1". 2.  $1\frac{1}{2}$ ". 3.  $\frac{3}{4}$ ". 4.  $\frac{1}{4}$ ". 5. 3". 6. 2".

(1). At the nearest edge of your desk with your thumb-nails facing each other.

(2). On paper, by short vertical lines.

(3). By horizontal lines drawn freehand.

(4). By horizontal lines drawn with a ruler.

- F. How many inches in:

1. 1 ft.?

4. 1 yd.?

7.  $\frac{1}{3}$  yd.?

10. 2' 2"?

2.  $\frac{1}{2}$  ft.?

5.  $\frac{1}{2}$  yd.?

8.  $\frac{1}{4}$  yd.?

11. 1' 1"?

3. 2 ft.?

6. 2 yd.?

9.  $\frac{3}{4}$  yd.?

12. 2' 6"?

## UNITED STATES MONEY: ORDER SLIPS

ORDER SLIP	
1 apple	3¢
3 pears	10
$\frac{1}{2}$ doz. oranges	18
	<u>31¢</u>
Henry Jones	

A. Write order slips and find the amount of change from 50¢ by subtraction for each order:

1. 3 pears for 10¢; 1 basket of grapes 20¢; 1 cucumber 6¢.

2. 1 head of lettuce 9¢;  $\frac{1}{2}$  peck of potatoes for 24¢.  
 3. 3 lb. sweet potatoes for 9¢; 1 bunch of celery 15¢.  
 4. 1 basket of grapes 24¢; 2 apples for 5¢.  
 5.  $\frac{1}{2}$  doz. peaches for 15¢; 3 grape fruit for 20¢; 2 apples for 5¢.  
 6. 1 cucumber 6¢; 2 lb. sweet potatoes for 6¢; 1 head of lettuce 8¢.

B. Write order slips for the following and keep the slips:

- |  |  |
|--|--|
| 1. 5 lb. sugar at 8¢,<br>2 lb. crackers at 9¢.                           | 4. 1 pkg. shredded wheat 12¢,<br>1 can of postum cereal 30¢.             |
| 2. 2 lb. butter at 42¢,<br>1 pkg. corn flakes 8¢.                        | 5. 1 lb. prunes at 18¢,<br>2 cans of beets at 12¢.                       |
| 3. 3 cans corn at 15¢,<br>2 loaves bread at 10¢,<br>1 lb. of coffee 35¢. | 6. 5 lb. squash at 6¢,<br>6 bars of soap for 25¢,<br>1 doz. oranges 35¢. |

C On the back of each slip, find the amount of change from \$1 by subtraction.

# SELF-SERVICE LUNCH

No. 34-2

## BILL OF FARE

Soup	10¢
Baked Beans	10¢
Chicken Pie	15¢
Chicken Sandwich	10¢
Egg Sandwich	10¢
Egg on Toast	10¢
Ham and Eggs	20¢
1 Lamb Chop	15¢
1 Pork Chop	15¢
Liver and Bacon	15¢
Small Steak	25¢
Potato	5¢
Rolls, each	5¢
Butter	2¢
Pie or Pudding	5¢
Coffee or Tea	5¢
Chocolate or Milk	5¢
Ice Cream	5¢ or 10¢

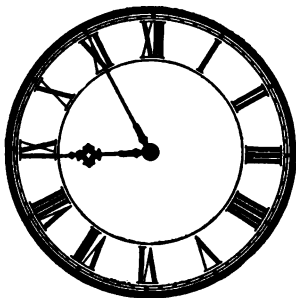
A. Find the change from 50¢ for each article in the bill of fare orally, and also in writing.

B. Find the cost of the following orders and the change from 50¢ by subtraction:

1. Baked beans, 1 roll, butter.
2. Chicken pie, 1 roll, butter, chocolate.
3. 1 lamb chop, potato, pudding.
4. Egg on toast, apple pie, small ice cream.
5. Soup, 1 roll, butter, pudding.
6. Liver and bacon, potato, 1 roll, butter, custard pie, milk.

- C. Select the best lunch that you can at a cost not over 25¢.
- D. Select a good lunch at a cost not to exceed 20¢.
- E. Select a working-man's lunch that shall cost not over 30¢.
- F. Find the cost of the following orders and the change from 50¢ by subtraction :
  1. Chicken pie, potato, two rolls, butter.
  2. Ham and eggs, potato, 1 roll, milk.
  3. 1 pork chop, 2 rolls, butter, coffee.
  4. 1 small steak, potato, 1 roll, apple pie.
  5. Egg sandwich, 1 roll, butter, Indian pudding, ice cream (small).

## TELLING TIME BY THE CLOCK



A clock has two hands. The long hand is called the minute hand. The short hand is called the hour hand. On the face of a clock there are twelve hour spaces and sixty minute spaces. In one hour the minute hand will travel the entire distance around the face of the clock. In one hour the hour hand will travel over one hour space.

When both of the hands are at XII, it is twelve o'clock. When the short hand is at III and the long hand is at XII, it is three o'clock. When the hour hand is between III and IV and the minute hand is at VI, the time is thirty minutes past three.

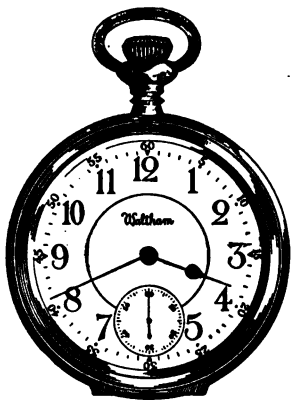
## A STUDY OF THE CLOCK FACE

1. How many hours are marked on the face of a clock?
2. Which hand shows the hours?
3. Which hand is the minute hand?
4. How long does it take the minute hand to pass from I to II?
5. How long does it take the hour hand to pass from I to II?
6. How long does it take the minute hand to pass around the clock face from XII to XII?
7. How long does it take the hour hand to pass around the clock face from XII to XII?
8. How many hours are there in one day, counting from midnight to midnight?

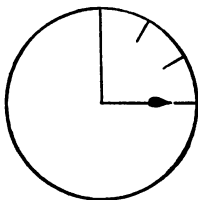
## STUDYING A WATCH FACE

No. 35-2

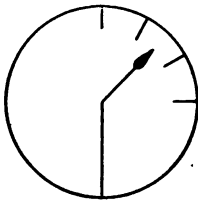
1. How many hands has a watch?
2. Name each hand of a watch.
3. Which hand moves fastest?
4. Which hand moves slowest?
5. How many spaces does the second hand pass over in a minute?
6. How many seconds in one quarter of a minute?
7. How many minutes are there in one half of an hour?
8. What kind of numbers are there on the face of this watch?
9. On the face of the schoolroom clock?
10. On a watch, how is number six made? On a clock?



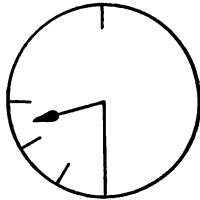
## RECORDING TIME AND INDICATING TIME



NO.1



NO.2



NO.3

I. Record the time as shown by these three clocks.  
(Cooperative.)

II. Make circles, and indicate the following times:

- |                              |                               |
|------------------------------|-------------------------------|
| 1. Fifteen minutes past one. | 6. Fifteen minutes to twelve. |
| 2. Thirty minutes past two.  | 7. Five minutes past three.   |
| 3. Twenty minutes past four. | 8. Twenty minutes to four.    |
| 4. Ten minutes past twelve.  | 9. Half past six.             |
| 5. Ten minutes to twelve.    | 10. Five minutes to six.      |

## FINDING THE COST OF MORE THAN ONE

## Illustrative Example :

When butter is 39¢  
a pound, what is the  
cost of 3 lb.?

$$\begin{array}{r} \text{Work : } 39\text{¢} \\ 3 \\ \hline 117\text{¢} = \$1.17 \end{array} \text{ Ans.}$$

- A. 1. When kerosene oil is 14¢ a gallon, find the cost of 5 gallons.  
2. At 26¢ a gallon, what is the cost of 8 gallons of gasoline?  
3. When eggs sell for 45¢ per dozen, what is the cost of 3 dozen eggs?  
4. At 38¢ a pound, find the cost of 2 pounds of coffee.  
5. Find the cost of 4 pounds of butter at 39¢ a pound.  
6. At 32¢ a pound, find the cost of a six-pound chicken.
- B. 1. What is the cost of 2 bags of flour at \$1.65 per bag?  
2. At \$1.75 a yard, find the cost of 8 yd. of silk.  
3. At 18¢ per can, find the cost of one dozen cans of baked beans.  
4. Find the cost of 6 dozen storage eggs at 42¢ per dozen.  
5. When string beans are sold at 17¢ per can, what is the cost of 8 cans?  
6. Find the cost of 1 dozen packages of Uneeda Biscuit at 4¢ per package.  
7. When Shredded Wheat is 12¢ per package, find the cost of one dozen packages.

## C. Find the cost of :

1. 9 tons of stove coal at \$8.25 per ton.
2. 3 tons of nut coal at \$8.75 per ton.
3. 12 bags of charcoal at 14¢ per bag.
4. 4 baskets of kindling wood at 45¢ per basket.
5. 3 tons of coke at \$5.75 per ton.
6. One dozen boxes of matches at 4¢ per box.

## D. Find the cost of :

1. A five-pound chicken at 35¢ per lb.
2. One nine-pound turkey at 42¢ a pound.
3. 7 pounds of sirloin beef to roast at 28¢ per lb.
4. 2½ pounds of sirloin steak at 36¢ a pound.
5. 6 pounds of pork to roast at 21¢ per pound.
6. An eight-pound leg of lamb at 28¢ per pound.

## E. Find the cost of :

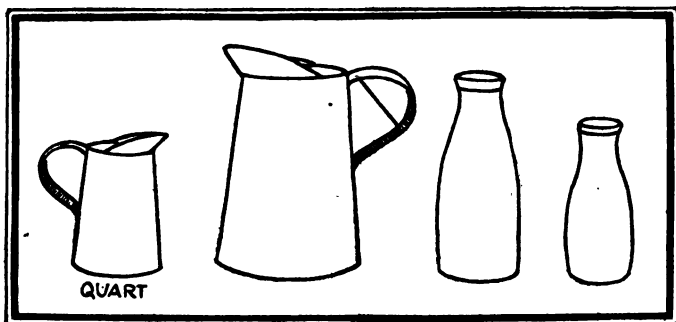
1. Two lb. of butter at 42¢ and 1 lb. of coffee at 35¢.
2. 2 doz. eggs at 63¢ and 2 lb. of crackers at 8¢.
3. 1 bag of flour \$1.65, 1 pk. potatoes 48¢, and 4 lb. squash at 5¢.
4. 2 loaves of bread at 10¢, 1 yeast cake 2¢, and 1 doz. oranges at 35¢.
5. 2 cans of corn at 15¢ and 6 cans of peas at 18¢.
6. 2 cans of tomatoes at 15¢ and 1 doz. peaches 25¢.

## LIQUID MEASURE : PINTS, QUARTS, GALLONS

## LIQUID MEASURE

 $2 \text{ pt.} = 1 \text{ qt.}$  $4 \text{ qt.} = 1 \text{ gal.}$ 

Liquid measure is used to measure the common liquids ; such as milk, kerosene, vinegar, molasses, etc.



- A. 1. How many quarts are there in one gallon?  
2. One quart is what part of a gallon?  
3. How many pints in one quart?  
4. What part of a quart is a pint?  
5. How many quarts in half a gallon?  
6. How many quart cans will a gallon of milk fill?  
7. How many pint cans will a quart of milk fill?  
8. How many pint cans will a gallon of milk fill?
- B. 1. Of what material is a milk bottle made?  
2. Why do you think that material is used?  
3. Of what material is the cover made?  
4. Which is usually put up in smaller cans, milk or cream?  
5. How many pints are there in  $1\frac{1}{2}$  quarts?  
6. What solid that children are very fond of is frequently sold by liquid measure?



- C. 1. Express as pints:  
1 qt. 2 qt. 2 qt. 1 pt. 3 qt. 4 qt.
2. Express as quarts:  
1 gal. 2 gal. 2 gal. 1 qt.  $\frac{1}{2}$  gal. 4 gal.
3. Express as gallons:  
4 qt. 6 qt. 8 qt. 10 qt. 12 qt.
4. How many pints are there in 2 gal.?
5. How many quarts are there in  $1\frac{1}{2}$  gal.?
6. How many gallons are there in 30 qt.?
- D. 1. How many quarts of milk will six pint cans contain?
2. How many gallons will an eight-quart can hold?
3. When milk is 10¢ per quart, what is the cost per pint?
4. When milk is 9¢ per quart, what is the cost per pint?
5. At 10¢ a quart, what will a gallon of milk cost?
6. Find the cost of a pint of milk, when the price is 10¢ per quart.
- E. 1. At 32¢ per gallon, find the cost of a quart of vinegar.
2. Find the cost of 6 quarts of gasolene at 20¢ a gallon.
3. Find the cost of one-half of a gallon of gasolene.
4. Find the cost of 10 quarts of gasolene.
5. From two gallons of milk how many quarts can be sold?
6. When a large milk can contains  $2\frac{1}{8}$  gal., how many pint cans will it fill?

## THE CALENDAR

## A LEAF FROM THE CALENDAR

1918 NOVEMBER 1918						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
LAST MONTH NEXT MONTH						
OCTOBER DECEMBER						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

There are seven days in a week. The first day of the week is Sunday.

There are twelve months in a year.

They are:

Jan. 31 da. July 31 da.  
 Feb. 28 da. (29) Aug. 31 da.  
 Mar. 31 da. Sept. 30 da.  
 Apr. 30 da. Oct. 31 da.  
 May 31 da. Nov. 30 da.  
 June 30 da. Dec. 31 da.

## THIRTY DAY RHYME:

"Thirty days hath September,  
 ber,  
 April, June and November."

There are 365 days in a common year. There are 366 days in a leap year. The year 1916 was a leap year. The year 1920 will be a leap year. Leap year comes once in four years, and then a day is added to the month of February.

- A. 1. How many days in a week?
2. How many days in four weeks?
3. How many school days in a week?
4. Name the days in a week.
5. How many days in October?
6. How many days in September?
7. How many days in November?
8. Name the months that have thirty days.
9. Name the first month of the year.
10. In September how many days more than four weeks?

## TABLE OF TIME

60 sec. = 1 min.

60 min. = 1 hr.

24 hr. = 1 da.

7 da. = 1 wk.

12 mo. = 1 yr.

365 da. = 1 yr.

Note:—The word day as used in the table means from midnight to midnight. Thus, the first day of November began at midnight.

In finding the time between dates it is the custom to count the time from noon of the first date to noon of the second date. Thus, the time from Sept. 1 to Sept. 9 is 8 days.

## B. Measures of Time.

1. How many days in one week?
2. How many hours in one day?
3. How many minutes in one hour?
4. How many seconds in one minute?
5. How many months in one year?
6. Name the months in order.
7. Name the shortest month.
8. Name the months that have thirty days.
9. How many days in January?
10. How many days in the twelfth month?

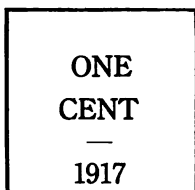
## C. Find the number of days:

1. From Oct. 1 to Oct. 12.
2. From Oct. 12 to Oct. 15.
3. From Oct. 15 to Oct. 19.
4. From Oct. 19 to Oct. 21.
5. From Oct. 21 to Oct. 25.
6. From Oct. 21 to Oct. 31.

## D. Find the number of days from:

1. Sunday to Wednesday.
2. Wednesday to Sunday.
3. Monday to Friday.
4. Friday to Sunday.
5. Sunday to Saturday.
6. Tuesday to Sunday.

## MAKING AND USING SCHOOL MONEY



Provide the pupils with strips of cardboard that they may measure, cut into squares, and print the money for the class.

The following are good sizes: 1¢, 1", 5¢, 1½"; 1 dime, 1", 25¢, 1¼"; 50¢, 1½"; \$1, 1¾".

In every transaction there should be four persons, the customer, the clerk, the cashier, and the banker. There should be three money boxes or tills. From one till the banker will supply each customer with a large coin to pay for his purchases; from the second the cashier will take coins in making change; into the third the banker will distribute all change that the customers return after they visit the clerk and the cashier.

The customer should write an order slip.

The clerk should inspect the order slip and put a check mark on it. The banker should give the customer a large coin.

The cashier should take the customer's slip and money and count out his change.

The customer should give his change to the banker.

For rapid work there should be two clerks, two cashiers, and two lines of customers.

As soon as a pupil has returned to his seat, he should be required to write a second slip and count the change on the back of the slip according to the model for Counting Change, Card No. 39-2.

In this written work, the pupils should be required to find the amount of change by ordinary subtraction as well as to count the change.

The pupils should be given some opportunity to play store in school and they should be encouraged to play store and count change at home.

## BUYING AT THE BAKERY

## BAKERY PRICE LIST

Apple pie	10¢; 20¢.
Baked beans	10¢ per pint.
Bread	5¢; 10¢ per loaf.
Brown bread	10¢ per loaf.
Butter	45¢ per lb.
Coffee rolls	12¢ per doz.
Custard pie	10¢; 20¢.
Date cake	15¢ per loaf.
Doughnuts	10¢ per doz.
Drop cakes	12¢ per doz.
Eggs	64¢ per doz.
Layer cake	25¢ per loaf.
Milk	10¢ per qt.
Rolls	10¢ per doz.

- A. Count the change from 50¢ for each article in the price list orally or in writing at the board.

## Counting Change in Writing.

## Oral Coins

10¢

+ 5¢

15

+ 10¢

25

+ 25¢

50

By  
Subtraction

50¢

10

40¢ Ans.

- B. Find the cost of the following articles and by subtraction the change from 50¢:

1. 1 large loaf of bread.

4.  $\frac{1}{2}$  doz. coffee rolls.

2. 1 layer cake.

5. 1 custard pie (small).

3. 1 pint baked beans.

6. 1 doz. rolls.

- C. 1. 1 large apple pie.

4. 3 drop cakes.

2.  $\frac{1}{2}$  doz. doughnuts.

5. 1 layer cake.

3. 1 custard pie (large).

6. 1 doz. rolls.

- D. 1. 1 pint baked beans and one loaf brown bread.

2. 1 custard pie and  $\frac{1}{2}$  doz. doughnuts.3. 1 quart milk and  $\frac{1}{2}$  lb. butter.

4. 1 small loaf of bread and 1 doz. rolls.

5. 1 date cake and 1 large apple pie.

6.  $\frac{1}{2}$  doz. eggs and  $\frac{1}{2}$  doz. coffee rolls.

## MEASURING BY WEIGHING

## TABLE OF WEIGHTS

16 oz. = 1 lb.	Avoirdupois weight is used to measure most solids that are sold in the grocery store and the market; such as meats, vegetables, butter, cheese, etc.
100 lb. = 1 cwt.	
2000 lb. = 1 T.	

Note.— $\frac{1}{4}$  lb. may be read "One fourth pound", "One fourth of a pound", "One quarter pound", or "One quarter of a pound".

## A. I. Recite orally.

## II. Copy and fill the blanks.

- 1 lb. = — oz.
- $\frac{1}{2}$  lb. = — oz.
- $\frac{1}{4}$  lb. = — oz.
- $\frac{1}{8}$  lb. = — oz.
- 2 lb. = — oz.

- $1\frac{1}{2}$  lb. = — oz.
- $1\frac{1}{4}$  lb. = — oz.
- $1\frac{1}{8}$  lb. = — oz.
- $\frac{3}{4}$  lb. = — oz.
- $\frac{3}{8}$  lb. = — oz.

## B. Express each weight as a fraction of a pound :

- 8 oz.
- 4 oz.
- 2 oz.
- 1 oz.
- 3 oz.
- 5 oz.
- 6 oz.
- 7 oz.
- 9 oz.
- 12 oz.

- C. 1. If you ask for a quarter of a pound of candy, how many ounces will you get?
2. What part of one pound is an eight-ounce weight?
3. How many one-ounce packages can be made from one pound of mustard?
4. How many two-ounce packages can be made from one pound of peppers?
5. From a pound of sugar how many half-ounce packages could be made?
6. Which is heavier  $\frac{1}{4}$  lb. or  $\frac{1}{8}$  lb.?

Note.—The rate of postage for letters is 2¢ per ounce or fraction of an ounce. The rate of postage for books is 1¢ for each two ounces or fraction of two ounces.

D. Find the postage on a letter weighing :

1.  $\frac{1}{2}$  oz. 2.  $1\frac{3}{4}$  oz. 3. 2 oz. 4.  $2\frac{1}{4}$  oz. 5.  $1\frac{1}{4}$  oz. 6. 3 oz.

E. Find the postage on each of the following books :

1. Reader 1 lb. 4. Fifty Famous Stories 10 oz.  
2. Arithmetic 9 oz. 5. Spelling Book 6 oz.  
3. Geography 19 oz. 6. Rice Drill Booklet  $1\frac{1}{2}$  oz.

F. 1. When 5 single sheets of letter paper (8" x 10") weigh an ounce, find the number of sheets in a pound.

2. In a half pound. 3. In a quarter of a pound.  
4. In  $\frac{3}{4}$  lb. 5. In  $\frac{2}{3}$  lb. 6. In  $\frac{7}{8}$  lb.

#### THANKSGIVING SUPPLIES

G. Find the cost of each article :

1. A ten-pound turkey at 48¢. 7. 2 pk. apples at 45¢.  
2.  $\frac{1}{2}$  pk. of potatoes at 72¢. 8. 2 loaves bread at 10¢.  
3. 2 qt. of cranberries at 12¢. 9.  $1\frac{1}{2}$  qt. of milk at 10¢.  
4. 8 lb. of squash at 6¢. 10. 2 jars cream at 18¢.  
5. 7 lb. of onions at 5¢. 11.  $\frac{3}{4}$  lb. cheese at 20¢.  
6. 2 lb. of raisins at 15¢. 12. 2 lb. mixed nuts at 25¢.

## FRACTIONS: DEFINITIONS

Any one thing is called a *unit*; as the figure 1, one dollar, one inch.

That which shows how many times a unit is taken is called a *number*. Numbers are usually expressed by figures.

A number that is applied to some particular object is called a *concrete* number; as 5 inches, 10 days. A number that is not applied to any particular object is called an *abstract number*; as 3, 17, 4.

A whole number is called an *integer*, or an *integral* number. A number that represents one or more of the equal parts of a unit is called a *fraction* or a *fractional* number.

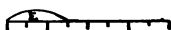
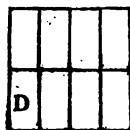
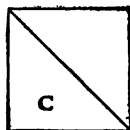
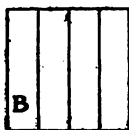
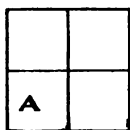
A fraction, expressed by two numbers, one above the other with a line between them, is called a *common fraction*. The number below the line is called the *denominator* and it shows into how many equal parts the unit is divided. The number above the line is called the *numerator* and it shows how many of those parts have been taken. The numerator and the denominator are called the *terms* of the *fraction*.

A fraction may be regarded as an *indicated division*, the numerator being the dividend and the denominator being the divisor. Thus, "Indicate the division of 3 by 4" may be expressed in three ways as follows: with the division sign  $3 \div 4$ ; with a curved line  $4 \overline{)3}$ ; or as a fraction  $\frac{3}{4}$ .

A number that is made up of an integer and a fraction is called a *mixed number*; as  $12\frac{1}{2}$ .



## FRACTIONS : EXERCISES



A. Tell what part of the figure is represented :

1. By A.      2. By B.      3. By C.      4. By D.
5. By the ends of the loop E.    6. By ends of loop F.

B. Write in figures :

1. one half.    5. three fourths.    9. five sixths.
2. one third.    6. three eighths.    10. seven eighths.
3. two thirds.    7. two fifths.      11. two and one half.
4. one fourth.    8. five eighths.    12. one and two thirds.

- C. 1. In the fraction  $\frac{2}{3}$ , what is the denominator?  
 2. What is the numerator of the fraction  $\frac{5}{8}$ ?  
 3. In the fraction  $\frac{3}{4}$  in., what is the unit divided?  
 4. What does the 4 tell?  
 5. What does the 3 tell?  
 6. Draw a two-inch line and loop off  $\frac{3}{4}$  of it.

D. Express by a drawing :

1.  $\frac{1}{3}$ .      2.  $\frac{3}{4}$ .      3.  $\frac{2}{3}$ .      4.  $\frac{3}{8}$ .      5.  $\frac{1}{8}$ .      6.  $\frac{7}{8}$ .

## PRACTICE ON SINGLE FIGURES: DIVISION

A. I. Divide orally the upper number by the lower.

$$\begin{array}{r} 1-10. \quad 6 \quad 10 \quad 4 \quad 8 \quad 12 \\ \quad \quad \underline{2} \quad \underline{2} \quad \underline{2} \quad \underline{2} \quad \underline{2} \end{array}$$

$$\begin{array}{r} 11-20. \quad 12 \quad 6 \quad 9 \quad 15 \quad 3 \\ \quad \quad \underline{3} \quad \underline{3} \quad \underline{3} \quad \underline{3} \quad \underline{3} \end{array}$$

$$\begin{array}{r} 21-30. \quad 20 \quad 8 \quad 12 \quad 24 \quad 16 \\ \quad \quad \underline{4} \quad \underline{4} \quad \underline{4} \quad \underline{4} \quad \underline{4} \end{array}$$

$$\begin{array}{r} 31-40. \quad 15 \quad 30 \quad 45 \quad 20 \quad 40 \\ \quad \quad \underline{5} \quad \underline{5} \quad \underline{5} \quad \underline{5} \quad \underline{5} \end{array}$$

$$\begin{array}{r} 41-50. \quad 12 \quad 6 \quad 18 \quad 30 \quad 24 \\ \quad \quad \underline{6} \quad \underline{6} \quad \underline{6} \quad \underline{6} \quad \underline{6} \end{array}$$

$$\begin{array}{r} 51-60. \quad 7 \quad 21 \quad 14 \quad 28 \quad 35 \\ \quad \quad \underline{7} \quad \underline{7} \quad \underline{7} \quad \underline{7} \quad \underline{7} \end{array}$$

$$\begin{array}{r} 61-70. \quad 16 \quad 24 \quad 48 \quad 56 \quad 32 \\ \quad \quad \underline{8} \quad \underline{8} \quad \underline{8} \quad \underline{8} \quad \underline{8} \end{array}$$

$$\begin{array}{r} 71-80. \quad 9 \quad 27 \quad 45 \quad 18 \quad 54 \\ \quad \quad \underline{9} \quad \underline{9} \quad \underline{9} \quad \underline{9} \quad \underline{9} \end{array}$$

$$\begin{array}{r} 81-90. \quad 12 \quad 12 \quad 12 \quad 12 \quad 12 \\ \quad \quad \underline{2} \quad \underline{3} \quad \underline{4} \quad \underline{5} \quad \underline{6} \end{array}$$

$$\begin{array}{r} 91-100. \quad 21 \quad 35 \quad 24 \quad 42 \quad 27 \\ \quad \quad \underline{7} \quad \underline{5} \quad \underline{8} \quad \underline{6} \quad \underline{9} \end{array}$$

II. Copy and divide.

$$\begin{array}{r} 9 \quad 19 \quad 39 \quad 29 \quad 49 \\ \underline{2} \quad \underline{2} \quad \underline{2} \quad \underline{2} \quad \underline{2} \end{array}$$

$$\begin{array}{r} 18 \quad 8 \quad 28 \quad 48 \quad 38 \\ \underline{3} \quad \underline{3} \quad \underline{3} \quad \underline{3} \quad \underline{3} \end{array}$$

$$\begin{array}{r} 6 \quad 26 \quad 46 \quad 16 \quad 36 \\ \underline{4} \quad \underline{4} \quad \underline{4} \quad \underline{4} \quad \underline{4} \end{array}$$

$$\begin{array}{r} 9 \quad 19 \quad 29 \quad 39 \quad 19 \\ \underline{5} \quad \underline{5} \quad \underline{5} \quad \underline{5} \quad \underline{5} \end{array}$$

$$\begin{array}{r} 7 \quad 37 \quad 17 \quad 47 \quad 27 \\ \underline{6} \quad \underline{6} \quad \underline{6} \quad \underline{6} \quad \underline{6} \end{array}$$

$$\begin{array}{r} 8 \quad 18 \quad 28 \quad 48 \quad 38 \\ \underline{7} \quad \underline{7} \quad \underline{7} \quad \underline{7} \quad \underline{7} \end{array}$$

$$\begin{array}{r} 15 \quad 35 \quad 25 \quad 55 \quad 45 \\ \underline{8} \quad \underline{8} \quad \underline{8} \quad \underline{8} \quad \underline{8} \end{array}$$

$$\begin{array}{r} 17 \quad 27 \quad 37 \quad 47 \quad 57 \\ \underline{9} \quad \underline{9} \quad \underline{9} \quad \underline{9} \quad \underline{9} \end{array}$$

$$\begin{array}{r} 27 \quad 32 \quad 46 \quad 80 \quad 52 \\ \underline{8} \quad \underline{5} \quad \underline{7} \quad \underline{11} \quad \underline{9} \end{array}$$

$$\begin{array}{r} 18 \quad 28 \quad 38 \quad 48 \quad 58 \\ \underline{6} \quad \underline{8} \quad \underline{5} \quad \underline{7} \quad \underline{9} \end{array}$$

B. I. Subtract orally.

C. I. Add orally.

D. I. Copy and multiply.

II. Copy and subtract.

II. Copy and add.

II. Multiply orally.

# LONG DIVISION : STEPS IN DIVISION

No. 42-2

In long division all the numbers that are used are written down on the work paper.

The quotient or answer is written above the dividend.

Illustrative examples :

I. Divide 462 by 21.

$$\begin{array}{r} \text{22 quotient} \\ \text{divisor } 21 \overline{)462} \text{ dividend} \\ \underline{42} \\ 42 \\ \underline{42} \end{array}$$

II. Divide 483 by 21.

$$\begin{array}{r} \text{23 Ans.} \\ 21 \overline{)483} \\ \underline{42} \\ 63 \\ \underline{63} \end{array}$$

## STEPS IN DIVISION

I. Find the quotient figure.

(1) By trial divisor : How many 2's in 4 ?

(2) By full divisor : How many 21's in 4 ?

How many 21's in 46 ?

II. Write the quotient figure.

Where shall the first figure in the quotient be placed ?

III. Multiply the divisor by the quotient figure.

Where shall the product be written ?

Can you subtract ?

Is the product smaller than the partial dividend ?

IV. Subtract the product from the partial dividend.

Is the remainder smaller than the divisor ?

V. Bring down the next figure for a new partial dividend.

VI. Repeat the steps.

Divide :

1. 882 by 21.

4. 1281 by 21.

7. 651 by 21.

2. 713 by 31.

5. 676 by 52.

8. 744 by 31.

3. 966 by 42.

6. 682 by 62.

9. 943 by 41.

## LONG DIVISION

A. Divide:

1. 966 by 21.    2. 672 by 32.    3. 848 by 71.    4. 806 by 62.  
5. 861 by 21.    6. 713 by 31.    7. 816 by 51.    8. 984 by 41

B. Find the quotients:

1.  $504 \div 21$ .    2.  $992 \div 32$ .    3.  $589 \div 31$ .    4.  $676 \div 52$ .  
5.  $651 \div 31$ .    6.  $943 \div 41$ .    7.  $483 \div 21$ .    8.  $969 \div 51$ .

C. Perform the divisions:

1.  $71 \overline{)923}$ .    2.  $61 \overline{)793}$ .    3.  $81 \overline{)891}$ .    4.  $32 \overline{)768}$ .  
5.  $41 \overline{)615}$ .    6.  $62 \overline{)906}$ .    7.  $52 \overline{)832}$ .    8.  $43 \overline{)602}$ .

## EXPRESSIONS USED IN DIVISION

In talking about the following example  $2 \overline{)8}$  we say "2 in 8, 4 times"; or "2 into 8, 4 times"; or "2 is contained in 8, 4 times". These expressions mean the same thing.

An indicated division is often troublesome to read.  
 $27 \div 9$  is read "27 divided by 9".

$3 \overline{)12}$  may be read "The divisor is 3 and the dividend is 12"; or "Divide 12 by 3"; or "12 divided by 3".

The pupils should be trained to take down examples from dictation and arrange them for division. The dictation may be given in the following forms:

Form I. Divide 697 by 41.

Form II. 315 divided by 21.

Form III. The divisor is 51; the dividend is 765.

- A. 1. A bushel of potatoes weighs 60 lb. Find the weight of a peck.
2. In a crate there are 168 oranges. How many dozen are there?
3. In a school year of 190 days, how many weeks are there?
4. When peas can be bought at \$2.60 per bushel, find the cost per peck.
5. What is the weight of a bag of flour that is  $\frac{1}{4}$  of a barrel (196 lb.)?
6. Find the weight of a bag of flour that is  $\frac{1}{8}$  of a barrel.
- B. 1. A case of eggs containing 24 doz. costs \$12.96. What was the cost per dozen?
2. The cost for express on these eggs was \$.72 and it was shared by three families. Find the charge to each family.
3. When the yearly expense for clothing for a family of four is \$150, what is the average cost for each person?
4. When the annual savings of a family of four are \$170, what is the average saving per individual?
5. When the expenses of a family of four are \$12.60 in a week, how much is that per day?
6. How much is the expense for each individual per day?
7. At 8¢ per lb., find the cost of 25 lb. of sugar.
8. At 8¢ per lb., how many pounds can be bought for \$1.00?

## PROBLEMS : COST OF ARTICLES

Illustrative example : When eggs are 62¢ per dozen, find the cost of 2 dozen.

Work :

$$\begin{array}{r} 62¢ \\ 2 \\ \hline 124¢ = \$1.24 \end{array}$$

Analysis :

1 dozen eggs costs 62¢.  
2 dozen eggs will cost 2  
times 62¢, or 124¢ = \$1.24. *Ans.*

- A. 1. At 62¢ per dozen find the cost of 9 dozen eggs.  
2. What is the cost of 3 pounds of butter at 38¢ a pound ?  
3. At 26¢ per peck, find the cost of 2 pecks potatoes.  
4. Find the cost of 6 bags charcoal at 14¢ per bag.  
5. A bushel of apples weighs 48 pounds. Find the weight of 4 bushels of apples. .  
6. Find the entire cost of 3 apples for 10¢ ;  $\frac{1}{2}$  doz. oranges for 20¢ ; 1 head of lettuce for 8¢.
- B. Find the cost :
1. Of 12 lb. of butter at 33¢ a pound.
  2. Of 48 lb. of sugar at 8¢ a pound.
  3. Of 2 doz. oranges at 35¢ per dozen.
  4. Of 3 bbl. of flour at \$7.50 per bbl.
  5. Of 2 doz. glass jars at 8¢ each.
  6. Of 15 yd. of calico at 5¢ per yard.
  7. Of 8 bars of soap at 4¢ per bar.
  8. Of 3 doz. eggs at 54¢ a dozen.
  9. Of 2 loaves bread at 10¢ each and 1 pie for 15¢.
  10. Of 6 lb. of lamb at 26¢ per pound.

## C. Find the cost of :

1. 5 gal. of kerosene oil at 15¢ per gallon.
2. 2 lb. of tea at 75¢ per pound.
3. 15 lb. of butter at 38¢ per pound.
4. 2 pk. of apples at 60¢ per peck.
5. 12 two-cent postage stamps.
6. 1 lb. of coffee at 35¢ per pound and 1 doz. eggs at 62¢ per dozen.

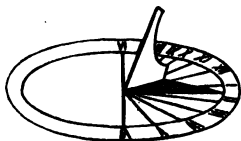
## D. 1. Find the cost of 3 lb. of butter at 28¢ per pound.

2. At 26¢ per gallon, find the cost of 6 gal. gasoline.
3. There are 24 dozen eggs in a case. How many eggs are there in the case?
4. At \$4.50 per day, find the week's pay for a week of six working days.
5. At 75¢ a day, how much will a boy earn in a month of 26 working days?
6. When coal is \$7.50 a ton, find the cost of 9 tons.

## E. 1. At 24¢ a yard, find the cost of 14 yards gingham.

2. When sugar is 8¢ per pound, find the cost of 50 lb.
3. When milk is 10¢ per quart and a family uses one quart a day, what is their milk bill for the month of November?
4. For the month of December?
5. For one week?
6. For a fortnight?

Before clocks were invented one of the simplest ways of telling time was by the use of a sun dial.



SUN DIAL

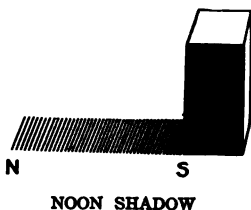
The dial plate had the hours marked upon it somewhat like a clock face. The shadow of the marker served as an hour hand to mark the hours of the day.

At noontime we look toward the south to see the sun and toward the north to see our own shadows.

In Boston during the month of February, noon by the clock and noon by the sun agree so closely that one can use the shadow cast by an object at 12 o'clock to help find a true north and south line.

#### EXERCISES

1. Stand a square prism on end on a table, or on your own desk where the sun is shining. At twelve by the clock draw a fine line from the prism along the edge of the shadow where the shadow and the sunlight meet. In Boston this line is a *north* and *south* line.



2. Stand your pencil vertically in the sunlight at twelve o'clock and find a north and south line.

3. Find and mark a north and south line in your schoolroom.

4. In your schoolyard. 5. In your own yard at home.

Note:—At other times of the year and in other parts of the country, the noon shadow may be used to find a true north and south line by adjusting the clock time to the “sun fast” or “sun slow” of the almanac of the locality.



- A. A railroad man would represent fifteen minutes past three by using three, point, fifteen (3.15) and he would state the time usually by saying "three-fifteen". He would express fifteen minutes of two by using one, point, four, five (1.45) and he would read his record by saying "one-forty-five".

A printer would represent thirty minutes past two by using two, colon, three, zero (2:30).

- B. 1. Read each time as a railroad man:  
 2. Read each time as if you were reading from the clock face:

- |         |         |          |           |
|---------|---------|----------|-----------|
| 1. 1.15 | 4. 4.10 | 7. 11.55 | 10. 10.15 |
| 2. 3.25 | 5. 2.50 | 8. 1.35  | 11. 12.05 |
| 3. 2.30 | 6. 3.45 | 9. 9.20  | 12. 8.40  |

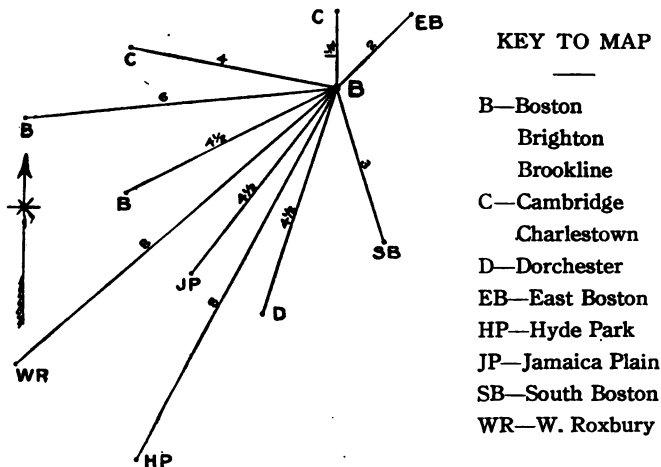
- C. 1. How long does it take a local train to go from Back Bay to Forest Hills?

TIME TABLE		
	Local	Express
	A.M.	A.M.
Back Bay	7.05	7.24
Roxbury	7.10	
Heath Street	7.12	
Boylston Street	7.14	
Jamaica Plain	7.16	
Forest Hills	7.18	7.32

2. How long does it take an express train to go from Back Bay to Forest Hills?
3. What is meant by a local train? By an express train?
4. In the time table how much longer does it take the local train to go from Back Bay to Forest Hills than it does the express train?
5. How many stations are there between Back Bay and Forest Hills?
6. Find the average loss of time at one of these stations because of the stops.

## LINE MAP: BOSTON POST OFFICES

The lines represent the distances between the central post office in Boston and some of the more important branch offices. The figures represent the distances in miles. They are measured in straight lines and not along the car routes. The letters are the initial letters of the names of post offices.



- A. State the direction of each post office from the Boston post office.
- B. State the distance of each post office from the Boston post office.
- C. Going by way of the Boston post office, find the distance in miles from:

1. Brighton to East Boston.
2. West Roxbury to Dorchester.
3. Hyde Park to Charlestown.
4. Cambridge to So. Boston.
5. Brookline to East Boston.
6. East Boston to Dorchester.
7. Jamaica Plain to Brighton.
8. Charlestown to So. Boston.
9. So. Boston to West Roxbury.
10. Cambridge to Charlestown.
11. Brighton to So. Boston.
12. Dorchester to Brookline.

FINDING THE COST OF A UNIT

No. 46-2

A. Find the cost of 1, when :

1. 18 lb. of sugar cost \$1.44.
2. 4 lb. of butter cost \$1.56.
3. 12 doz. eggs cost \$6.96.
4. 14 yd. of cloth cost \$17.50.
5. 3 bbl. of flour cost \$28.50.
6. 6 days' wages are \$7.50.

B. Find the cost of 1, when :

1. 5 bbl. of flour cost \$47.50.
2. 3 bbl. of sugar cost \$81.12.
3. 24 books cost \$7.68.
4. 25 class pins cost \$16.25.
5. 9 tons of coal cost \$65.25.
6. 7 lb. lamb cost \$1.96.

C. Find the cost of 1, when :

1. 4 lb. of butter cost \$1.92.
2. 6 doz. eggs cost \$3.90.
3. 8 gal. of gasoline cost \$2.08.
4. 31 qt. of milk cost \$3.41.
5. 9 bags of charcoal cost \$1.35.
6. 25 lb. of sugar cost \$2.00.
7. 1 doz. bottles of olives cost \$1.50.
8. 7 T. of coal cost \$64.75.
9. 5 lb. of chicken cost \$1.40.
10. 4 T. of hay cost \$78.

## COMPARING THE VALUES OF FRACTIONS

## A. Change as indicated :

1.  $\frac{2}{3} = \frac{\quad}{8}$ .

5.  $\frac{1}{6} = \frac{\quad}{12}$ .

9.  $\frac{4}{5} = \frac{\quad}{10}$ .

2.  $\frac{1}{3} = \frac{\quad}{12}$ .

6.  $\frac{2}{3} = \frac{\quad}{10}$ .

10.  $\frac{7}{8} = \frac{\quad}{16}$ .

3.  $\frac{3}{4} = \frac{\quad}{8}$ .

7.  $\frac{3}{8} = \frac{\quad}{16}$ .

11.  $\frac{5}{6} = \frac{\quad}{12}$ .

4.  $\frac{2}{4} = \frac{\quad}{12}$ .

8.  $\frac{1}{2} = \frac{\quad}{16}$ .

12.  $\frac{5}{8} = \frac{\quad}{16}$ .

## B. Which is larger :

1.  $\frac{1}{2}$  or  $\frac{1}{3}$ ?

5.  $\frac{1}{3}$  or  $\frac{2}{3}$ ?

9.  $\frac{1}{2}$  or  $\frac{1}{4}$ ?

2.  $\frac{1}{3}$  or  $\frac{1}{4}$ ?

6.  $\frac{3}{8}$  or  $\frac{5}{8}$ ?

10.  $\frac{1}{10}$  or  $\frac{1}{6}$ ?

3.  $\frac{1}{2}$  or  $\frac{1}{6}$ ?

7.  $\frac{3}{4}$  or  $\frac{1}{2}$ ?

11.  $\frac{1}{3}$  or  $\frac{1}{6}$ ?

4.  $\frac{2}{3}$  or  $\frac{3}{8}$ ?

8.  $\frac{3}{4}$  or  $\frac{7}{8}$ ?

12.  $\frac{3}{4}$  or  $\frac{5}{6}$ ?

## C. Arrange in the order of value, writing the largest fraction first :

1.  $\frac{1}{4}, \frac{3}{4}, \frac{1}{2}$ .

5.  $\frac{3}{4}, \frac{7}{8}$ .

9.  $\frac{1}{2}, \frac{7}{8}$ .

2.  $\frac{2}{5}, \frac{4}{5}, \frac{3}{5}$ .

6.  $\frac{2}{3}, \frac{5}{6}$ .

10.  $\frac{1}{3}, \frac{5}{12}$ .

3.  $\frac{2}{6}, \frac{1}{6}, \frac{4}{6}$ .

7.  $\frac{1}{6}, \frac{1}{10}$ .

11.  $\frac{7}{12}, \frac{2}{3}$ .

4.  $\frac{3}{8}, \frac{5}{8}, \frac{1}{2}$ .

8.  $\frac{3}{10}, \frac{2}{5}$ .

12.  $\frac{1}{4}, \frac{3}{8}$ .

## D. How many peaches are there:

1. In 1 doz.?

5. In  $\frac{3}{4}$  doz.?

9. In  $1\frac{1}{2}$  doz.?

2. "  $\frac{1}{2}$  doz.?

6. "  $\frac{2}{3}$  doz.?

10. " 2 doz.?

3. "  $\frac{1}{3}$  doz.?

7. "  $\frac{1}{6}$  doz.?

11. "  $2\frac{1}{2}$  doz.?

4. "  $\frac{1}{4}$  doz.?

8. "  $\frac{5}{6}$  doz.?

12. "  $3\frac{1}{3}$  doz.?

Illustrative examples :

$$\begin{array}{r} \text{I.} \quad 23 \\ 31 \overline{) 713} \\ \underline{62} \phantom{0} \\ 93 \\ \underline{93} \\ 0 \end{array}$$

$$\begin{array}{r} \text{II.} \quad 312 \\ 21 \overline{) 6552} \\ \underline{63} \phantom{00} \\ 25 \phantom{0} \\ \underline{21} \phantom{00} \\ 42 \phantom{0} \\ \underline{42} \\ 0 \end{array}$$

In each of the above examples :

1. Read the dividend.
2. Read the divisor.
3. Name the trial divisor.
4. Name the first partial dividend.
5. Where is the first figure of this quotient written ?
6. How many figures will there be in this quotient ?
7. Answer these questions in regard to each of the following examples :

A. Divide :

1. 951 by 31.
2. 854 by 61.
3. 504 by 62.
4. 651 by 31.
5. 462 by 21.
6. 672 by 32.
7. 882 by 42.
8. 876 by 73.

B. Find the quotients :

1.  $899 \div 31$ .
2.  $989 \div 23$ .
3.  $744 \div 62$ .
4.  $972 \div 81$ .
5.  $504 \div 24$ .
6.  $990 \div 22$ .
7.  $994 \div 71$ .
8.  $913 \div 83$ .

C. Perform the divisions :

1.  $21 \overline{) 681}$ .
2.  $41 \overline{) 892}$ .
3.  $23 \overline{) 284}$ .
4.  $21 \overline{) 471}$ .
5.  $23 \overline{) 493}$ .
6.  $43 \overline{) 485}$ .
7.  $21 \overline{) 474}$ .
8.  $34 \overline{) 387}$ .

D. Divide :

1. 5824 by 52.
2. 6944 by 32.
3. 9951 by 31.
4. 5480 by 32.
5. 8988 by 42.
6. 7182 by 21.
7. 1012 by 92.
8. 9375 by 75.

## MEASURING VEGETABLES, FRUIT, ETC.

## DRY MEASURE

2 pt. = 1 qt.

8 qt. = 1 pk.

4 pk. = 1 bu.

32 qt. = 1 bu.

All dry and bulky articles were formerly sold at retail by the quart, or the peck, or the bushel and the proper quantity was found by filling a standard measure.

In Massachusetts the state law now requires that vegetables, fruits, and nuts must be measured by weighing them, even though they are called for by the terms of dry measure. The law gives the weight of these articles by the bushel, but people in retail stores generally ask for a peck, or half peck, or a

quart. It is important for clerks to be able to find the weight of one peck and one quart of the common vegetables and fruits.

TABLE OF WEIGHTS  
PER BUSHEL

Apples	48 lb.
Beans (Dry)	60 lb.
Beans (String)	24 lb.
Corn	56 lb.
Cranberries	32 lb.
Onions	52 lb.
Peas (Green)	28 lb.
Potatoes	60 lb.
Potatoes (Sweet)	54 lb.
Spinach	12 lb.
Tomatoes	56 lb.
Wheat	60 lb.

(Cooperative)

A. 1-12. Find the weight of one peck of each article in pounds.

B. 1-12. Find the weight of one peck and then of one quart of each article in pounds. *Keep the answers.*

C. 1-12. Find the weight of one quart of each article in ounces. *Keep the answers.*

D. Make a clerk's card containing the names of the

articles in the table and the weight of 1 bushel, 1 peck, and 1 quart. Plan your card. Print the words and make neat figures.

- E. 1. How many quarts in a bushel?  
2. In a two-peck bag how many quarts?  
3. How many pecks will a bushel box hold?  
4. Find the cost of a bushel of berries at 10¢ a quart.  
5. At 60¢ a peck, find the cost of a bushel of potatoes.  
6. When a peck of apples costs 48¢, what is the cost of two quarts?  
7. At 6¢ per quart, find the cost of a bushel of cranberries.  
8. How many quarts are there in a half bushel?  
9. Find the weight of a peck of apples.  
10. Find the weight of a peck of potatoes.

F. Name one article sold :

- |                         |                        |
|-------------------------|------------------------|
| 1. By the gallon.       | 6. By numerical count. |
| 2. By the liquid quart. | 7. By the dozen.       |
| 3. By the pound.        | 8. By the bag.         |
| 4. By the ounce.        | 9. By the crate.       |
| 5. By the ton,          | 10. By the bushel.     |

G. What part of:

- |                    |                     |                      |
|--------------------|---------------------|----------------------|
| 1. 1 qt. is 1 pt.? | 5. 1 lb. is 1 oz.?  | 9. 1 gal. is 1 qt.?  |
| 2. 1 pk. is 1 qt.? | 6. 1 cwt. is 1 lb.? | 10. 1 gal. is 1 pt.? |
| 3. 1 bu. is 1 pk.? | 7. 1 T. is 1 cwt.?  | 11. 1 pk. is 1 pt.?  |
| 4. 1 bu. is 1 qt.? | 8. 1 T. is 1 lb.?   | 12. 2 qt. is 1 pt.?  |

## PROBLEMS: MISCELLANEOUS

Illustrative example: When coal is \$8.50 per ton, find the cost of 14 tons.

$$\begin{array}{r} \text{Work:} \\ \$8.50 \\ 14 \\ \hline 3400 \\ 850 \\ \hline \$119.00 \end{array}$$

Analysis:

1 ton of coal costs \$8.50.  
14 tons will cost 14 times  
\$8.50, or \$119. *Ans.*

- A. 1. At 49¢ a peck, find the cost of 2 pk. of potatoes.  
2. When print butter is 38¢ per pound, what is the cost of 6 lb.?  
3. At \$8.25 per ton for stove coal, find the cost of 8 tons of stove coal.  
4. At \$8.75 a ton for nut coal, what is the cost of seven tons?  
5. Find the cost of 3 doz. oranges at 45¢ per dozen.  
6. When apples are 60¢ a peck, find the cost of 2 bushels at the peck rate.
- B. 1. A barrel of flour weighs 196 lb. Find the weight of 4 barrels.  
2. When a train runs at the average rate of 28 mi. per hour, how far can it go in an eight-hour day?  
3. When a man's salary is \$4.75 per day, how much money should he have in his pay envelope at the end of the week?  
4. How much should a carpenter receive as a month's pay for a month of 26 working days at \$4.50 per day?  
5. In one school day there are 5 hours. Find the number of school hours in a school week.  
6. Find the number of school hours in a month of 23 school days.



- C. 1. Find the entire cost of one dozen oranges at 35¢ per dozen and three apples for 10¢.
2. A piece of cheese costs 14¢, a date cake costs 15¢, and two loaves of bread are 5¢ each. Find the cost of all.
3. A loaf of bread costs 10¢, a custard pie 20¢, and a dozen coffee rolls 12¢. Find the cost of all.
4. Find the entire cost of one jar of milk at 10¢, two jars of cream at 18¢ each, and one cream cheese at 10¢.
5. What is the cost of two pounds of butter at 38¢ and one pound of cheese at 18¢?
6. When two pounds of butter are bought at 38¢ per pound, how much change for a dollar is given back?
- D. 1. At \$35 per month, find the cost of rent for one year.
2. When rent costs \$480 per year, find the cost per month.
3. At \$36 per month, find the cost of rent per day for the month of November.
4. At 10¢ a quart, find the cost of one quart of milk per day for the month of December.
5. At an average cost of \$35 per month for food for a family of four, find the cost for a year.
6. When a family of four allows \$450 per year for the purchase of food, what is the average allowance per month?
- E. Find quotients:
- |           |           |           |           |
|-----------|-----------|-----------|-----------|
| 1. 21)462 | 2. 35)770 | 3. 24)504 | 4. 31)682 |
| 5. 22)990 | 6. 23)989 | 7. 42)924 | 8. 62)744 |

## FINDING AREAS BY COUNTING

- A.
1. Draw a square one inch long and one inch wide. This is a *square inch*.
  2. Write underneath the drawing 1 sq. in.
  3. Draw an *oblong* or *rectangle* 4 in. long and 2 in. wide.
  4. Divide it into square inches and write underneath the drawing the number of square inches.
  5. The number of square inches that a rectangle contains is called its *area* or *square contents*.
- B.
1. Draw an oblong 3 in. long and 2 in. wide.
  2. The length and the width of this oblong are called its *dimensions*.
  3. The boundary lines of a rectangle are called its *perimeter*. To find the perimeter of a rectangle is to find the distance around it.
  4. Find the length of the perimeter of this oblong.
  5. Divide the oblong into inch squares, count the number of squares, and write under the oblong its area in square inches.
- C.
1. Measure the length and width of one sheet of your block paper.
  2. Rule off a strip one inch wide, running lengthwise of the paper.
  3. How many such strips could you rule off?
  4. Divide one strip into square inches.
  5. Find the number of square inches in one surface of the paper.

## AREAS AND DIMENSIONS

- A.
1. Draw an inch square.
  2. What three things show that it is a square?  
Its sides are of equal length; the opposite sides are parallel; the corners are square or are right angles.
  3. Draw a rectangle 4 in. by 3 in. and find its area or square contents by counting.
  4. State the dimensions of this rectangle.
  5. What three things do you find true of this rectangle?
  6. Find the perimeter of this rectangle.
- B.
1. How long and how wide is a sheet of your block paper?
  2. What is the largest square that you can draw upon a sheet of your block paper?
  3. In what terms do you express the dimensions of a sheet of paper?
  4. In what terms would you express the dimensions of the floor of your schoolroom?
  5. How many square inches are there in one square foot?
  6. How many square feet in one square yard?
- C.
- |  |   |
|--|---|
| 1. Make a small drawing to represent the floor of a room 10 ft. by 12 ft. (Scale $1" = \frac{1}{8}"$ ).  | <b>SQUARE MEASURE</b><br>$144 \text{ sq. in.} = 1 \text{ sq. ft.}$<br>$9 \text{ sq. ft.} = 1 \text{ sq. yd.}$ |
| 2. Make a small drawing to represent a card 6" by 4". (Scale $1" = \frac{1}{8}"$ ).                      |   |
| 3. Make a small drawing to represent the top of a pupil's desk 16" by 12". (Scale $1" = \frac{1}{8}"$ ). |   |

## MAKING AND USING SALE SLIPS

<p align="center"><b>The Fourth Grade Department Store</b>          130 Appleton St., Boston, Mass.</p>	
<p align="center">Date <i>March 12, 1918</i></p>	
<p>Sold to <i>Henry H. Smith</i>  <i>92 Chandler St.</i>  <i>Cambridge</i></p>	
<p>CLERK  <i>J. H. Brown</i></p>	<p>AMOUNT RECEIVED  <i>\$5.00</i></p>
<p><i>1 pr. gloves</i></p>	<p><i>1 50</i></p>
<p><i>6 collars</i></p>	<p><i>90</i></p>
<p><i>4 handkerchiefs</i></p>	<p><i>72</i></p>
	<p><i>3 12</i></p>
<p align="center"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>PAID</b>  <b>MAR. 15, 1918</b> </div> </p>	

I. Rule a sale slip. II. Copy the above sale slip.

III. Answer the following questions:

- Who sold the goods?
- Who bought the goods?
- Who made out this slip?
- Who paid the five dollars?
- How much change was paid back?
- Who received the change?
- When were the goods bought?
- Who will keep the receipted slip?

# THE FOURTH GRADE DEPARTMENT STORE

No. 51-2

NOTE.—Do not use the dollar sign or the cent sign in the money columns. Write the figures in vertical columns, but write them close to the line that separates dollars and cents.

Chairs	\$3.50
Collars, 15¢ each; 2 for 25¢	
Gloves, per pr.	\$1.35
Handkerchiefs	15¢
Napkins, per doz.	\$2.40
Neckties	75¢
Pillow cases	25¢
Rocking chairs	\$6.75
Rugs	\$7.50; \$18.00
Sheets	95¢
Stockings, per pr.	18¢
Students' lamps	\$4.95
Tables	\$12.50
Table cloths	\$2.75
Towels	45¢

As a clerk for the Fourth Grade Department Store, make out sale slips and receipt them for the following sales:

- A. 1. On March 1, we sold to Henry T. Smith, 5 Park St., 2 chairs and 2 table cloths. (\$20 received).
2. On Mar. 2, Charles T. Warren, 27 Appleton St., bought 1 small rug and 1 rocking chair. (\$15 received).
3. James J. Murray, 6 Poplar St., on Feb. 3, bought 1 student's lamp, 1 rocking chair and 2 common chairs. (\$20 received).
- B. 1. On Feb. 4 we sold to S. B. Mayo, 12 South St., 6 towels and 1 table cloth. (\$10 received).
2. William Ryan, 25 Malden St., bought on Feb. 6 1 necktie, 6 pairs of stockings, and 6 handkerchiefs. (\$5 received).
3. On Feb. 7, we sold to Thomas R. Sawyer, 5 Popular St., 1 large rug, 1 student's lamp, and 1 chair. (\$30 received).
4. On Feb. 11, we sold to J. H. Newman, 7 Warren St., 1 rocking chair, 2 sheets, and a half dozen handkerchiefs. (\$10 received).

## PROBLEMS: ANALYSIS

At 8¢ a pound, how many pounds of sugar can be bought for \$2.00?

Work :

$$\$2.00 = 200¢$$

$$\begin{array}{r} 8¢ \overline{)200¢} \end{array}$$

25 (times)

25 lb. *Ans.*

Analysis :

$$\$2.00 = 200¢.$$

8¢ will buy 1 lb.

For 200¢ you can buy as many pounds as 8¢ are contained times in 200¢ or 25 lb. *Ans.*

- A.
1. When 1 lead pencil costs 3¢, how many can you buy for 60¢?
  2. When oranges are 48¢ per doz., what is the cost per orange?
  3. When potatoes are \$2.16 per bushel, find the cost per peck.
  4. When strawberries are 18¢ per box, how many boxes can be bought for 72¢?
  5. When milk is 10¢ per quart, find the cost of a gallon.
  6. When a gallon of milk sells for 44¢, what is the cost per quart?
- B.
1. When 3 tennis balls cost \$1.05, find the cost per ball.
  2. Find the cost of one bushel of apples, when  $\frac{1}{2}$  of a peck costs 30¢.
  3. A crate of eggs containing 24 doz. costs \$9.12. Find the cost per dozen.
  4. When a young man receives \$9.00 per week, what is his pay per day?
  5. When a 25-trip R. R. ticket costs \$2.25, what is the cost per ride?
  6. A single fare on the railroad referred to in No. 5 is 14¢. Find the cost of 25 single fares.

**PROBLEMS: ANALYSIS**

**No. 52-2**

- C. 1. Our house rent is \$450 per year. How much is the rent per month?
2. My gas bill was \$4.50 for the month of November. What was the cost per day?
3. When 11 tons of coal cost \$104.50, find the cost of one ton.
4. 15 tons of stove coal cost \$146.25. Find the cost per ton.
5. A clerk agreed to work a year for \$750. How much should he receive at the end of the first two months?
6. When a case of eggs containing 24 dozen costs \$14.88, what is the cost of one dozen?
- D. 1. When a man earns \$16.50 in 6 days, how much does he earn per day?
2. How much does a man earn per day, when he earns \$19.50 per week?
3. At \$1.80 per dozen, find the cost of one linen collar.
4. Find the cost of 6 pairs of cuffs, when the price is \$3 per dozen pairs.
5. The distance from Boston to New York is 234 miles. At 39 miles per hour, how long will it take an express train to make the run?
6. An ocean-going steamer goes at the average rate of 25 miles per hour. How many hours will it take that steamer to cross the Atlantic Ocean where the distance is 3000 miles?

## MARKET REPORT

## MARKET REPORT

Apples	56¢ per pk.
Bacon	38¢ per lb.
Butter	42¢ per lb.
Celery	15¢ per bunch.
Coffee	35¢ per lb.
Eggs	62¢ per doz.
Flour	\$1.65 per bag.
Lamb chops	40¢ per lb.
Lettuce	8¢ per head.
Potatoes	48¢ per pk.
Round steak	36¢ per lb.
Rump steak	45¢ per lb.
Squash	6¢ per lb.
Sugar	8¢ per lb.

From the market report find the cost of the following :

- A. 1. 2 lb. bacon.  
2. 7 lb. squash.  
3. 1 bu. potatoes.  
4.  $1\frac{1}{2}$  lb. butter.  
5. 3 bags flour.  
6. 2 lb. rump steak.
- B. 1. 24 lb. sugar.  
2.  $2\frac{1}{2}$  lb. round steak.  
3. 1 head of lettuce and 1 bunch celery.  
4. 1 bu. apples.  
5.  $\frac{1}{2}$  bu. potatoes.  
6. 16 lb. squash.
- C. 1. 3 lb. lamb chops and 8 lb. squash.  
2. 2 pk. potatoes and 10 lb. sugar.  
3. 1 bag flour and 1 pk. apples.  
4. 1 bunch celery and 2 lb. butter.  
5. 2 heads of lettuce and 1 pk. apples.  
6. 2 doz. eggs and 1 lb. coffee.
- D. 1. 2 lb. rump steak and  $1\frac{1}{2}$  lb. butter.  
2. 1 bu. potatoes and 10 lb. squash.  
3. 1 bag of flour and  $\frac{1}{2}$  doz. eggs.  
4. 4 qt. apples and two heads of lettuce.  
5. 1 lb. coffee and 50 lb. sugar.  
6. 2 bunches of celery and a squash weighing 12 lb.



# LONG DIVISION : Fraction in the Quotient No. 53-2

Illustrative example :

$$\begin{array}{r} 13 \\ 42 \overline{)565} \\ \underline{42} \\ 145 \\ \underline{126} \\ 19 \text{ rem.} \end{array}$$

The remainder may be spoken of as 19 remainder; or as 19 left over; or as 19 over.

The value of this remainder as a part of the quotient may be expressed by writing a fraction whose numerator is the remainder and whose denominator is the divisor. The complete quotient is  $13\frac{19}{42}$ .

A. Divide :

- |               |               |                 |
|---------------|---------------|-----------------|
| 1. 683 by 21. | 5. 985 by 42. | 9. 875 by 61.   |
| 2. 976 by 21. | 6. 863 by 71. | 10. 829 by 51.  |
| 3. 968 by 41. | 7. 954 by 83. | 11. 932 by 81.  |
| 4. 564 by 23. | 8. 589 by 24. | 12. 1549 by 32. |

## ENLARGED TRIAL DIVISOR

NOTE. When the units' figure is 7, 8, or 9, it is often a good plan to increase the first figure of the *trial divisor* by one.

B. Divide :

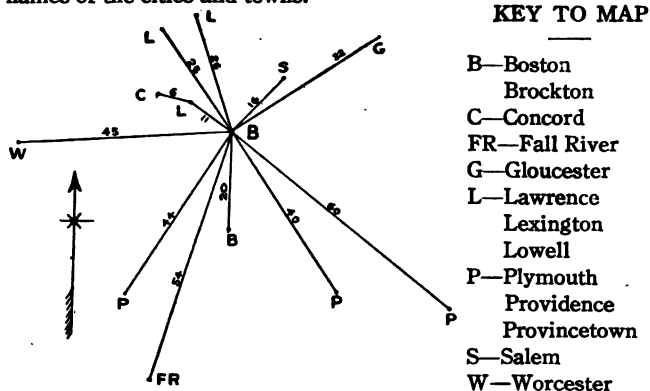
- |               |               |                |
|---------------|---------------|----------------|
| 1. 814 by 37. | 5. 918 by 27. | 9. 910 by 35.  |
| 2. 836 by 38. | 6. 972 by 36. | 10. 897 by 39. |
| 3. 928 by 29. | 7. 988 by 26. | 11. 900 by 36. |
| 4. 456 by 19. | 8. 983 by 37. | 12. 912 by 38. |

C. Perform the divisions :

- |                    |                    |                     |
|--------------------|--------------------|---------------------|
| 1. $912 \div 38$ . | 5. $756 \div 27$ . | 9. $975 \div 38$ .  |
| 2. $986 \div 29$ . | 6. $936 \div 39$ . | 10. $980 \div 37$ . |
| 3. $972 \div 27$ . | 7. $839 \div 38$ . | 11. $961 \div 26$ . |
| 4. $851 \div 37$ . | 8. $899 \div 28$ . | 12. $924 \div 29$ . |

## LINE MAP of Boston and Vicinity

The lines represent the distances between Boston and some nearby cities and towns. The numbers represent the distances in miles by rail between railroad stations, except to Provincetown which is 120 miles by rail. The letters are the initial letters of the names of the cities and towns.



- A. State the direction of each city or town from Boston.
- B. State the distance of each city or town from Boston.
- C. Going by way of Boston, find the distance in miles from :
  1. Worcester to Plymouth.
  2. Gloucester to Fall River.
  3. Brockton to Concord.
  4. Providence to Lowell.
  5. Salem to Worcester.
  6. Lexington to Gloucester.
  7. Boston to Concord.
  8. Plymouth to Lexington.
  9. Lawrence to Fall River.
  10. Worcester to Providence.
  11. Concord to Plymouth.
  12. Brockton to Provincetown.

Note:—Any number that can be divided by 2 without a remainder is called an even number. Any number that cannot be divided by 2 without a remainder is called an odd number.

- A. 1. Write the even numbers between 1 and 11 and add them.  
 2. Write the odd numbers between 2 and 10 and find their sum.  
 3. From the following arrange in a column the numbers that stand under even numbers and add them:

(1)	(2)	(3)	(4)	(5)
728	576	469	294	763
(6)	(7)	(8)	(9)	(10)
872	945	397	671	769

4. From the above list arrange in a column the numbers that stand under odd numbers and add them.  
 5. Write the odd numbers from 10 to 20 and find their sum.  
 6. Write the even numbers between 11 and 21 and add them.

- B. Change to lowest terms:

1. $\frac{2}{4}$	2. $\frac{3}{6}$	3. $\frac{4}{8}$	4. $\frac{5}{10}$	5. $\frac{6}{12}$	6. $\frac{7}{14}$	7. $\frac{8}{16}$	8. $\frac{9}{18}$	9. $\frac{10}{20}$
10. $\frac{11}{22}$	11. $\frac{12}{24}$	12. $\frac{13}{26}$	13. $\frac{14}{28}$	14. $\frac{15}{30}$	15. $\frac{16}{32}$	16. $\frac{17}{34}$	17. $\frac{18}{36}$	18. $\frac{19}{38}$

- C. Find the answers:

- |                         |                   |                          |                |
|-------------------------|-------------------|--------------------------|----------------|
| 1. $\frac{1}{2}$ of 12. | 6. $12 \div 2$ .  | 11. $\frac{1}{3}$ of 36. | 16. \$2) \$18. |
| 2. $\frac{1}{3}$ of 24. | 7. $27 \div 3$ .  | 12. $\frac{2}{3}$ of 36. | 17. \$4) \$20. |
| 3. $\frac{1}{4}$ of 32. | 8. $36 \div 4$ .  | 13. $\frac{3}{4}$ of 24. | 18. \$6) \$42. |
| 4. $\frac{1}{8}$ of 40. | 9. $32 \div 8$ .  | 14. $\frac{3}{8}$ of 16. | 19. \$8) \$32. |
| 5. $\frac{1}{6}$ of 48. | 10. $48 \div 6$ . | 15. $\frac{7}{8}$ of 40. | 20. \$5) \$45. |

Addition	Subtraction	Multiplication	Division
1. $\begin{array}{r} 432 \\ 9 \end{array}$	2. $\begin{array}{r} 432 \\ 9 \end{array}$	3. $\begin{array}{r} 432 \\ 9 \end{array}$	4. $9 \overline{)432}$

5. Work each example and write the following words after or near the numbers to which they apply: Multiplicand, multiplier, product, sum, dividend, divisor, quotient, remainder, answer.

## NAMING PROCESSES IN PROBLEMS

- I. Read each problem carefully and then write the sign (+, −, ×, ÷), or the abbreviation (add., sub., mul., div.) that represents the process that you would use in working the problem.

## II. Work the examples.

- A. 1. A man earns \$3.75 per day. How much does he earn in a month of 26 working days?
2. A man paid \$2.25 for a railroad ticket book and \$3.50 for a meal ticket. How much did he pay for both?
3. When a man receives \$23.40 as pay for a week of 6 days, what is his pay per day?
4. When a man receives 60¢ per hour, what is his pay for six eight-hour days?
5. When a man receives \$6 as wages for an eight-hour day, what is his pay per hour?
6. A young typewriter works 15 hours at 15¢ per hour. How much change should she return from a five-dollar bill?

- B.
1. How many days are there in the last three months of the year?
  2. A train goes 432 miles in an eight-hour day. How many miles does it go per hour?
  3. At \$1.75 per yard, find the cost of 9 yards of silk.
  4. A man has \$500 in the savings bank. He draws out \$125. How much has he left in the bank?
  5. What is the cost of 4 gallons of milk, at 10¢ per quart?
  6. At 10¢ per quart and one quart per day, find the cost of milk for the month of December.
- C.
1. A school of 1215 pupils is organized with 45 pupils to a class. How many classes are there?
  2. In a class of 45 pupils, each pupil uses two sheets of paper per day. How many sheets of paper are used in a school week?
  3. A flour barrel weighs 19 pounds and the net weight of the flour is 196 pounds. Find the combined weight.
  4. A baker uses 392 pounds of flour per day. How much will he use in a week of six days?
  5. A sugar barrel and its contents weighed 338 pounds. The barrel weighed 23 pounds. Find the net weight of the sugar.
  6. Find the cost of 24 barrels of flour at \$9.35 per barrel.
  7. At 45 miles per hour, how long will it take a railway train to go 1125 miles?

## FIND THE COST OF MORE THAN ONE

Illustrative example :

When a boy receives 3¢ for each *Transcript* sold, how much will he receive from the sale of 72 *Transcripts*?

NOTE:—Frequently the true multiplicand is much smaller than the true multiplier. In the written work it is simpler to use the smaller number as the multiplier. One must be careful to label properly the true multiplicand and the answer.

WORK :

$$\begin{array}{r} 72 \\ 3\text{¢} \\ \hline 216\text{¢} = \$2.16 \text{ Ans.} \end{array}$$

ANALYSIS :

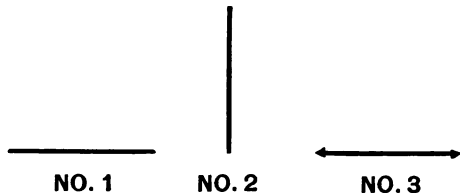
1 Transcript sells for 3¢.  
72 Transcripts will sell for  
72 times 3¢, or 216¢. 216¢  
are equal to \$2.16. Ans.

- A. 1. At 6¢ per pound at wholesale, find the cost of a barrel of sugar which weighs 338 pounds net.  
2. Find the cost of one barrel of sugar which weighs 331 pounds net, when the wholesale price is 6¢ a pound.  
3. When flour is \$8 per barrel at wholesale, find the cost of 24 barrels.  
4. Find the value of 175 barrels of potatoes, when the wholesale price is \$2.50 per barrel.  
5. When apples sell at \$3.25 per barrel at wholesale, what is the value of 125 barrels ?  
6. Find the cost of 12 dozen bars of soap at 3¢ each.
- B. 1. When the summer vacation is 11 weeks long, how many days are there in the summer vacation?  
2. At 10¢ per quart, find the cost of one quart of milk per day for the month of December.

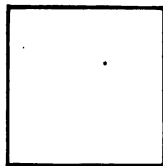
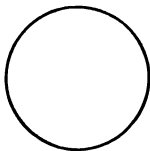
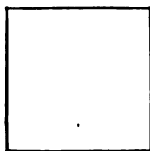
3. At 28¢ per copy, find the cost of three arithmetics.
  4. When apples are \$4.25 a barrel, find the cost of 120 barrels.
  5. At 16¢ per yard, find the cost of 8 yards of cloth.
  6. When a newsboy earns 25¢ per day on the average, how much will he earn in two weeks of 6 days each?
- C.
1. At 60¢ per dozen, find the cost of a case of eggs containing 24 dozen.
  2. When a boy works 8 hours per day, how many hours does he work in a month of 26 days?
  3. There are 38 weeks in a school year. How many school days are there in one school year?
  4. In one barrel of flour there are 196 pounds. Find the weight of 8 barrels.
  5. When a man receives \$2.75 per day, what does he receive for a week of 6 days?
  6. When a carpenter's wages are \$4.50 per day, what does he receive for a month with 26 working days?
- D.
1. When the trolley fare is 6¢, how much money does the conductor take in 78 cash fares?
  2. When a conductor's pay is \$3.00 per day, what is his pay for a year of 365 days?
  3. When a lawn man has 50¢ per hour, find his pay for a week of 6 eight-hour days.
  4. At \$3.75 per day, find a conductor's pay for 31 days of work.
  5. At \$3.75 per day, find the month's pay of a conductor who worked every day during April.

## FOLLOWING DIRECTIONS

- A.
1. Draw an inch square and then a half-inch square one inch to the right. Use your ruler when it will help.
  2. Draw a straight line from the upper right-hand corner of the large square to the lower left-hand corner of the small square.
  3. Which line looks the longest?



4. Which line looks the shortest?
  5. Draw a half-inch square. Place under this square a number to show the length of its perimeter.
- B.
1. Draw a two-inch square. Place under it the length of its perimeter.
  2. Copy freehand the three forms that follow as accurately as you can in one minute.



3. Put an L in the largest form that you have drawn.
4. Put an S in the smallest form that you have drawn.
5. Think of an inch cube. How many faces has it? How many edges?



## A. Divide:

- |                |                |                 |
|----------------|----------------|-----------------|
| 1. 9362 by 31. | 5. 4510 by 41. | 9. 6548 by 32.  |
| 2. 4326 by 21. | 6. 9486 by 31. | 10. 5842 by 54. |
| 3. 6624 by 32. | 7. 4842 by 23. | 11. 6435 by 21. |
| 4. 4510 by 22. | 8. 8353 by 41. | 12. 8830 by 42. |

## B. Perform the divisions:

- |                      |                      |                       |
|----------------------|----------------------|-----------------------|
| 1. $4992 \div 24$ .  | 5. $31512 \div 78$ . | 9. $6676 \div 33$ .   |
| 2. $6897 \div 33$ .  | 6. $88437 \div 98$ . | 10. $8976 \div 44$ .  |
| 3. $8316 \div 27$ .  | 7. $4554 \div 22$ .  | 11. $17748 \div 87$ . |
| 4. $35909 \div 89$ . | 8. $8830 \div 42$ .  | 12. $15354 \div 76$ . |

## MISCELLANEOUS PROBLEMS

- C. 1. 18 tons of coal cost \$157.50. What was the price per ton?
2. At a total cost of \$15.36, arithmetics were furnished to a class. At 32¢ each, how many books were bought?
3. When a dinner ticket for 30 days costs \$10.50, what is the price per meal?
4. Find one sixteenth of one thousand seven hundred twenty-eight dollars.
5. 12 men hired a motor boat and agreed to pay \$15. What was each man's share of the cost?
6. Our President's salary is \$75,000 per year. Find his salary per month.
7. In a certain year there were 940 hours of school. Find the number of school days in that year, reckoning 5 hours per day.

## MISCELLANEOUS PROBLEMS -

- A. 1. The first settlement was made in Massachusetts in 1620. How old was the colony in 1776?
2. The Massachusetts state constitution was adopted in 1780. In the year 1917, how long had that constitution been in force?
3. Find the number of years from 1620 to 1920.
4. Boston was settled in 1630. It was managed as a town till 1822, when it became a city. How long was Boston under town government?
5. When will Boston be 100 years old as a city?
6. In what year was the town of Boston 100 years old?
7. What year is three centuries later than the first settlement in Massachusetts?
- B. 1. At 9¢ a quart, find the cost of milk for the thirty-one days of October at the rate of one quart per day.
2. What is the value in cents of one quarter, two dimes, three nickels, and four cents?
3. From five dollars take one dollar and seventy-four cents.
4. From ten dollars take three dollars and sixty-two cents.
5. Express as cents the combined value of one dollar, one quarter, one dime, one nickel, and one cent.
6. Take two dollars and thirty-nine cents from ten dollars.

- C. 1. A newsboy sold 18 Travelers, 14 Records, 15 Globes, 23 Americans, and 9 Transcripts. How many papers did he sell?
2. A newsboy ordered 8 dozen newspapers and sold 89 of them. How many did he have left?
3. A newsboy bought 60 evening papers at one half of a cent each and sold them to customers at a cent apiece. How much did he make?
4. In the school savings bank the deposits by the classes of grade four for one month were \$4.50; \$1.87; \$3.15; \$2.25. Find the total deposits.
5. The deposits by the classes of grade five for one month were \$3.24; \$2.76; \$4.17; \$5.18. Find the total deposits by grade five.
6. The deposits by the classes of grade eight were \$8.37; \$6.94; \$7.39; \$4.39. Find the total deposits by grade eight.
- D. 1. At 14¢ a quart, what is the cost of three quarts of blueberries?
2. At 9¢ per quart, find the cost of 31 quarts of milk.
3. At 36¢ a dozen, what is the cost of 24 doz. eggs?
4. When oranges are 30¢ a dozen, find the cost of 18 oranges.
5. Find the cost of two pounds of chocolate creams at 39¢ a pound.
6. When one ton of coal costs \$9.50, find the cost of 12 tons.
7. When you buy ten two-cent postage stamps, how much change do you get from a quarter?

## MEASUREMENT OF LONG DISTANCES

## Linear Measure

$$12 \text{ in.} = 1 \text{ ft.}$$

$$3 \text{ ft.} = 1 \text{ yd.}$$

$$36 \text{ in.} = 1 \text{ yd.}$$

$$5280 \text{ ft.} = 1 \text{ mi.}$$

A. 1. Write the number of feet in a mile.

2. Find the number of feet in one half of a mile.

3. In one quarter of a mile.

4. In one eighth of a mile.

5. In one sixteenth of a mile.

6. In one third of a mile.

Note:—Every school district should establish standard distances similar to those given in this note and those given in the problems that follow.

The distance from the Lincoln Monument at Park Square, measured along Columbus Avenue to Massachusetts Avenue, is exactly one mile. The distance from the Rice School building to the State House in an air line is a little more than one mile.

B. 1. When George walks briskly, his step or pace is exactly 20 inches. He found that the length of his schoolroom was 18 paces. Find its length in feet.

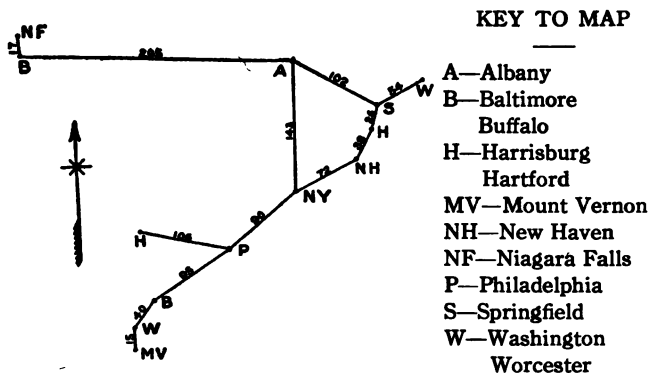
2. He found the width of his schoolroom was 15 paces with 12 inches over. Find the width in feet.

3. George found that the schoolyard was 80 paces long and 64 paces wide. Find the perimeter of his schoolyard in paces and in feet.

4. The school premises are in the form of a rectangle and George found that the length was 189 paces and the width was 96 paces. Find the perimeter of the school premises in feet.

5. The block that includes the school building is rectangular in form and it is 405 ft. long and 270 ft. wide. Find the distance around this block.

6. Make a freehand drawing to represent this block.



The figures represent distances between cities in miles.

- A. 1. State the direction of each city from New York.
  2. Find Niagara Falls and state its distance and direction from Buffalo.
  3. Tell what the letters M. v. stand for and state the distance and the direction of that place from Washington.
- B. Find the distance of each city from New York.
- C. Going by way of New York, find the distance in miles from :
1. Worcester to Philadelphia.
  2. Albany to Washington.
  3. Buffalo to Baltimore.
  4. Worcester to Mt. Vernon.
  5. Baltimore to Niagara Falls.
  6. Albany to Springfield.
  7. Hartford to Niagara Falls.
  8. Hartford to Baltimore.
  9. New Haven to Mt. Vernon.
  10. Albany to Mount Vernon.

## MISCELLANEOUS PROBLEMS

Note. \$.25 and 25¢ are equals; \$30, \$30.00, and 3000¢ are equals. When the dividend and the divisor are sums of money, in written work they must both be expressed with the dollar sign or both with the cent sign.

- A. 1. At 25¢ each, how many books can be bought for \$30?  
2. How many books can be bought for \$60 when the price is 30¢ each?  
3. When arithmetics cost 35¢ each, find the cost of 45 arithmetics.  
4. At 35¢ each, how many arithmetics can be bought for \$14?  
5. Find the cost of 4 dozen arithmetics at 28¢ each.  
6. When 25 arithmetics cost \$7.50, find the cost of 45 arithmetics.
- B. 1. At 42¢ per yard, find the cost of 14 yd. of dress goods.  
2. At 36¢ a dozen, what is the cost of 18 oranges?  
3. At 30¢ per dozen, find the value of 20 oranges.  
4. Find the cost of  $1\frac{1}{2}$  doz. oranges at 35¢ per dozen.  
5. How many quarts are there in 9 pecks?  
6. How many quarts are there in 9 bushels?
- C. 1. How many hours are there in 6 days?  
2. In 6 working days of eight hours each?  
3. When Charles gives addition answers at the rate of one answer per second, how many answers can he give in one half of a minute?  
4. How many minutes are there from 10.50 A. M. to 1.30 P. M.  
5. Express 189 days as weeks.  
6. Change 189 days to school weeks.

MISCELLANEOUS PROBLEMS

No. 60-2

- D. 1. A schoolroom is 32 feet long and 28 feet wide. Find the length of its perimeter.
2. How many seats are there in a schoolhouse of 14 rooms, when each room has 48 desks?
3. In the above school the average daily attendance is 43 per class. How many seats are vacant?
4. On the first schoolday in September there were 574 pupils present. How many pupils should be assigned to each of the 14 classrooms?
5. The daily attendance for a week was as follows: 574; 586; 593; 602; 615. Find the average daily attendance.
6. Of the 615 pupils belonging on Friday, 318 were boys. How many girls belonged that day?
- E. 1. My gas bill for October was \$2.08 and is unpaid. My bill for November is 24 cents more. Find the amount due for the two months.
2. A boy has a two dollar bill, a one dollar bill, one nickel, two cents, and the four silver coins. How much less than five dollars has he?
3. How many days in the first six months of the year 1918?
4. How many days from January 1 to February 22?
5. How many days from October 12 to Christmas?
6. How many days in the last six months of any year?





## A WORK-BOOK IN ARITHMETIC

### PART THREE

As pupils move up through the grades, they are more frequently called upon in their arithmetic work to do their own thinking, and to give evidence of their capacity by passing written tests. It seems reasonable, even in grade four, to begin "to prepare pupils to go alone".

## SEPTEMBER TESTS

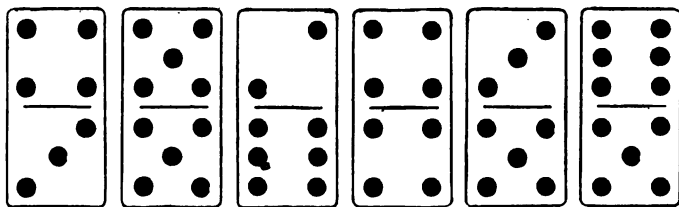
- A. Write in figures and add :
1. Three hundred forty-four ; fifty-three ; two hundred fifteen.
  2. Five hundred sixty-eight ; two hundred three ; four hundred nineteen.
  3. Two hundred thirty-five ; seventy-nine ; seven hundred eighty-two.
  4. Four dollars and forty-eight cents ; two dollars and thirty-seven cents ; five dollars and sixty cents.
  5. Three dollars and twenty-four cents ; six dollars and thirteen cents ; ninety-three cents.
- B. Write the addition and multiplication tables of sixes.
- C.
1. From 50¢ take 24¢.
  2. Take 18¢ from 50¢.
  3. From fifty cents take thirteen cents.
  4. Take nineteen cents from fifty cents.
  5. From 75¢ find by subtraction the change for a purchase that cost 59¢.
- D.
1. Find the length of the first line on this page, beginning with Rice and ending with 61.
  2. Find the length of the print on this page from top to bottom.
  3. Find the length of this page from top to bottom.
- E. Take from dictation examples 26-30, Card No. 2 and add.

## OCTOBER TESTS

- A. At a signal from your teacher write the time as shown by your schoolroom clock.
- B. Find the cost of :
1. 3 tons of coal at \$9.35 per ton.
  2. 50 bbl. of apples at \$2.75 per bbl.
  3. 2 lb. of Tokay grapes at 15¢ per lb. and 10 lb. of sweet potatoes at 3¢ per lb.
  4. 2 bags of flour at \$1.65 per bag.
  5. 12 lb. of sugar at 8¢ per lb. and 2 lb. of lard at 18¢ per lb.
- C. Write the addition and multiplication tables of eights.
- D. Write order slips for the following :
1. 3 lb. of crackers at 9¢ and 2 lb. of butter at 42¢.
  2. 1 bunch of celery 10¢ and 5 lb. of sweet potatoes at 4¢.
  3. 2 pkg. of cream cheese at 10¢ and 2 lb. of crackers at 9¢.
  4. 3 lb. of butter at 42¢ and 6 lb. of sugar at 8¢.
  5. 1 lb. of coffee 38¢ and 6 pkg. of corn flakes at 8¢.
- E. Take from dictation examples 26-30, Card No. 6 and add.

## NOVEMBER TESTS

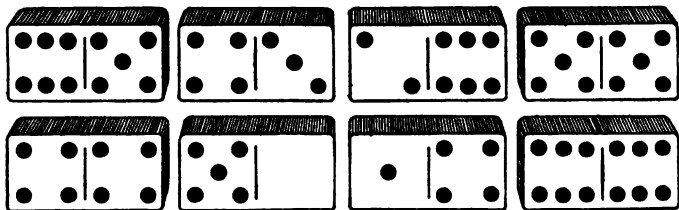
- A. 1. At 26¢ per gallon, find the cost of 8 gallons of gasoline.
2. Find the total number of days in October, November, and December.
3. At 10¢ per quart, find the cost of milk for the month of October.
4. Find the cost of an eight-pound leg of lamb at 28¢ per pound.
5. Write today's date.
- B. Write the multiplication and division tables of sevens ; of fours.
- C. Find the total number of spots on the dominoes, not by counting, but by addition :



- D. Find the number of days from :
- |                        |                        |
|------------------------|------------------------|
| 1. Nov. 1 to Nov. 9.   | 4. Nov. 25 to Nov. 30. |
| 2. Nov. 11 to Nov. 16. | 5. Monday to Friday.   |
| 3. Nov. 18 to Nov. 22. | 6. Friday to Tuesday.  |
- E. Take from dictation examples 26-30, Card No. 8 and add.

## DECEMBER TESTS

- A. 1. At 48¢ a pound, find the cost of a nine-pound turkey.
2. When two jars of cream cost 36¢, what is the cost of 3 jars?
3. When cranberries cost 96¢ per peck, find the cost per quart.
4. At 25¢ per pound, find the cost of 5 lb. of mixed nuts.
5. Change  $1\frac{7}{8}$  lb. to ounces.
- B. Work examples 43-48, Card No. 11.
- C. Write the addition, multiplication, and division tables of nines.
- D. Find the total number of spots on the dominoes, not by counting, but by addition:



- E. 1. Change  $1\frac{7}{8}$  lb. to ounces.
2. Which is heavier  $\frac{1}{2}$  lb. or  $\frac{3}{4}$  lb.?
3. How many one-ounce packages can be made from 2 pounds of cough drops?
4. How many days in December?
5. How many weeks and days in December?

## JANUARY TESTS

A. Find the cost of a unit of each kind, when:

1. 15 yd. of cloth cost \$22.20.
2. 16 lb. of butter cost \$7.20.
3. 24 doz. eggs cost \$16.08.
4. 4 weeks' wages are \$108.
5. 26 days' pay is \$97.50.

B. Perform the divisions:

1.  $943 \div 41$
2.  $483 \div 21$
3.  $384 \div 32$
4.  $736 \div 23$
5.  $408 \div 34$
6.  $682 \div 31$
7.  $882 \div 42$
8.  $506 \div 22$

C. Work examples 49-60, Card No. 13.

D. Write the subtraction and division tables of eights.

E. Write in figures and add:

1. Seventy-five; forty-six; thirty-four; sixty-seven; fifty-eight.
2. Thirty-nine; sixty-seven; eighty-five; forty-eight; ninety-seven.
3. Two hundred thirty-nine; five hundred sixty-three; three hundred seventeen; six hundred eight.
4. Five hundred nineteen; seven hundred eight; six hundred eleven; two hundred thirteen.
5. Eight hundred fifty-four; four hundred sixteen; three hundred fourteen; nine hundred forty-four.

## FEBRUARY TESTS

- A. Find the cost of:
1. Two pounds of butter at 46¢ per pound.
  2. 2 doz. eggs at 64¢ and 2 lb. of crackers at 8¢.
  3. 1 bag of flour \$1.65, 1 pk. of potatoes at 72¢, and 4 lb. squash at 5¢.
  4. 2 cans of tomatoes at 15¢ and 6 cans of peas at 18¢.
  5. 2 loaves of bread at 10¢, 1 lb. of coffee at 35¢, and 1 yeast cake 2¢.
- B. Find the time in minutes from 1.30 P. M. to each of the following times in the afternoon:
1. 1.55      2. 1.45      3. 2.10      4. 2.25      5. 3.00
- C. 1. Find the value of a bushel of berries at 14¢ per quart.
2. At \$2.40 per bushel, find the cost of 1 pk. of potatoes.
  3. When a peck of apples costs 48¢, what is the cost per bushel?
  4. A barrel which holds 2 bu. of apples holds how many pecks?
  5. When 2 quarts of apples weigh 3 lb., find the weight of a half bushel of apples.
- D. 1. Write the division table of nines.
2. Work examples 31-40, Card No. 14.
  3. Copy and divide examples 71-80, Card No. 42.
- E. Work examples 16-20, Card No. 19.

## MARCH TESTS

- A. 1. At 28¢ a pound, find the cost of 6 lb. of ham.  
2. When 7 tons of coal cost \$61.25, what is the cost per ton?  
3. When a steamboat runs at the average rate of 12 miles per hour, how far will it go in a 24-hour day?  
4. When 2 barrels of flour cost \$17.50, find the cost of 6 barrels.  
5. At \$4.25 per day, figure a carpenter's wages for a month of 26 working days.
- B. Perform the divisions:
- |            |            |            |
|------------|------------|------------|
| 1. 32)6944 | 2. 31)9951 | 3. 52)5824 |
| 4. 42)8988 | 5. 31)899  | 6. 32)5280 |
- C. 1. The divisor is twenty-four. The dividend is five hundred four. Find the quotient.  
2. Arrange seventy-two divided by three and find the quotient.  
3. When one barrel of flour costs eight dollars and fifty cents, find the cost of eighteen barrels.  
4. Find three fourths of \$4.80.  
5. At seventy-five cents per day, find a boy's pay for a month of twenty-six working days.
- D. Perform examples 1-10, Card No. 20.
- E. Take from dictation Test E, Card No. 22.



## APRIL TESTS

- A. 1. When lead pencils are  $2\phi$  each, find the cost of four dozen.
2. At \$9.90 per ton, find the cost of 8 tons of coal.
3. When 9 tons of coal cost \$78.75, find the cost of one ton.
4. At the average rate of 13 miles per hour, how long will it take an electric car to go from Boston to New York, a distance of 234 miles?
5. Find the cost of 8 bags of charcoal, when 2 bags cost  $28\phi$ .
- B. Perform examples 11-20, Card No. 20.
- C. Work Test A, Card No. 22.
- D. Find the cost of:
1. 2 lb. of butter at  $42\phi$  and 2 lb. of lard at  $8\phi$ .
2. 1 bag of flour, when eight bags cost \$13.20.
3.  $\frac{1}{8}$  of a barrel of flour, when a barrel costs \$9.72.
4. 2 pk. of potatoes at  $72\phi$  per peck and a dollar's worth of sugar.
5. 6 lb. of lamb at  $32\phi$  per pound.
- E. Take from dictation:
1. Examples 26-30, Card No. 8 and add.
2. Examples 31-35, Card No. 23 and subtract.
3. Examples 1-5, Card No. 24 and multiply.

## MAY TESTS

- A. Work examples 41-45, Card No. 20.
- B.
1. In one week a boy sold newspapers as follows: 109, 78, 69, 84, 76, 71, 97. Find the total number sold.
  2. This boy earned from his paper work the following sums:  $54\frac{1}{2}\phi$ ,  $39\phi$ ,  $34\frac{1}{2}\phi$ ,  $42\phi$ ,  $38\phi$ ,  $35\frac{1}{2}\phi$ ,  $48\frac{1}{2}\phi$ . How much did he earn during this week?
  3. In five weeks the pupils deposited in the school savings bank as follows: \$17.36; \$18.95; \$24.78; \$9.43; \$19.47. Find the total deposits.
  4. In a school building there are 463 boys and 378 girls. How many pupils in the school?
  5. A man bought a suit of clothes for \$35, a hat for \$3.50, and an overcoat for \$28. Find the total cost.
- C. Work examples 21-25, Card No. 24.
- D.
1. At \$2.75 per yard, find the cost of 15 yards of silk.
  2. When a man earns \$96 per month, how much does he earn in a year?
  3. Find the entire cost of 12 pounds of coffee at  $38\phi$  per pound and 52 pounds of sugar at  $8\phi$  per pound.
  4. At \$8.75 per ton, find the cost of 18 tons of stove coal.
  5. At  $48\phi$  per hour, find a man's earnings for a week of 6 eight-hour days.

## JUNE TESTS

- A. 1. A man bought an overcoat for \$32.50 and paid for it with a fifty dollar bill. How much change did he receive?
2. The distance from New York to Chicago is 960 miles; from Boston to Chicago is 1007 miles. Which is the greater distance and how much?
3. The distance from Boston to Liverpool is 2932 miles; from New York to Liverpool is 3540 miles. How much farther is the distance from New York to Liverpool?
4. In a school of 1478 pupils, 689 pupils are boys. How many are girls?
5. Two trains start from Washington and travel for four hours, one going due south 112 miles and the other going due north 152 miles. How far apart are they at the end of the four hours?
- B. 1. When collars are \$1.80 per dozen, find the cost of one collar at the same rate.
2. The distance from Boston to New York is 234 miles. How long will it take an express train, at the average rate of 39 miles per hour, to go from Boston to New York?
3. When a man earns \$110.50 in a month of 26 working days, how much does he earn per day?
4. A bushel of apples weighs 48 lb. How many bushels are there in 528 lb.?
5. How many hours are there in the month of May?
- C. Work examples 41-45, Card No. 24.
- D. Work examples 21-25, Card No. 20.

## RICE DRILL CARD IN ARITHMETIC

No. 70-2

## JUNE TESTS

## A. Divide:

1.	2.	3.	4.	5.
53)32701	84)40908	67)47436	98)74284	79)16274

## B. Multiply:

1.	2.	3.	4.	5.
8642 <u>56</u>	4279 <u>43</u>	7586 <u>82</u>	6975 <u>87</u>	7293 <u>98</u>

## C. Subtract:

1.	2.	3.	4.	5.
76528 <u>47235</u>	50875 <u>29697</u>	39481 <u>12796</u>	79008 <u>25689</u>	89006 <u>52437</u>

## D. Copy and add:

1. 478	2. 289	3. 958	4. 346	5. 925
387	859	409	798	357
274	574	796	469	386
748	387	570	259	647
<u>589</u>	<u>935</u>	<u>867</u>	<u>378</u>	<u>794</u>

## E. Add without copying:

1. 379	2. 864	3. 429	4. 697	5. 987
973	379	458	854	699
895	568	546	908	876
598	936	260	679	587
689	480	712	784	465
986	793	495	436	679
896	679	972	807	598
689	286	586	284	946
<u>977</u>	<u>596</u>	<u>605</u>	<u>769</u>	<u>889</u>

